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622.33  
L3srLd  
1992  
HKM Associates  
South Red Lodge  
dump maintenance  
for state of  
Montana Abandoned  
Mines Reclamation  
Bureau, Project

AUG 31 1992

STATE LANDS

**FINAL REPORT**

**SOUTH RED LODGE DUMP MAINTENANCE  
FOR  
STATE OF MONTANA  
ABANDONED MINES RECLAMATION BUREAU  
PROJECT NUMBER DSL-AMRB 91-M03**

**Red Lodge, Montana**

**South Central Portion of the State In Carbon County**

**Township 7 South, Range 20 East, Section 27 SE $\frac{1}{4}$**

**August, 1992**

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**HKM Associates  
Engineers/Planners**

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Miles City, Montana/(406) 232-6666  
Sheridan, Wyoming/(307) 672-9006

August 28, 1992  
P:\WP\08\MI86126\JAH01177.LTR

Mr. Dan Koszuta, P.E., R.L.S.  
Department of State Lands - AMRB  
1625 Eleventh Avenue  
Helena, MT 59620

RE: South Red Lodge Dump Maintenance 91-M03  
Draft Close-Out Report


Dear Mr. Koszuta:

Enclosed are two copies of the draft close-out report for the above referenced project. For this submittal we have elected to send only copies of original documents and photographs since the report will need to be updated after final acceptance and the contractor has been paid in full. Since work remains to be completed this fall on the original contract and change orders 1 and 2, this report actually reflects the project status at this point in time.

Please review the report and comment such that your comments may be included in the final close-out. Thank you for your time and consideration.

Sincerely,

HKM ASSOCIATES

  
Craig C. Canfield, P.E.

CCC/jah

Enclosures





**FINAL REPORT**  
**SOUTH RED LODGE DUMP MAINTENANCE**  
**FOR**  
**STATE OF MONTANA**  
**ABANDONED MINES RECLAMATION BUREAU**  
**PROJECT NUMBER DSL-AMRB 91-M03**

**Red Lodge, Montana**  
**South Central Portion of the State In Carbon County**  
**Township 7 South, Range 20 East, Section 27 SE<sup>1</sup>/<sub>4</sub>**

August, 1992

HKM Associates  
P.O. Box 31318  
Billings, MT 59107



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## 1.0 INTRODUCTION

### 1.1 Project Location

The project site was located east of the City of Red Lodge in Carbon County, Montana. This particular site can be further identified as the SE $\frac{1}{4}$  of Section 27, Township 7 South, Range 20 East.

### 1.2 Site History and Problems

The project site was directly adjacent to Rock Creek and was part of the original Red Lodge Coal Mine. The site was approximately 7 to 8 acres in size and consisted of a large mine working area which was located on a low terrace above Rock Creek. Adjacent to the terrace are steep slopes ranging in height from one to two hundred feet. Seeps that emerged from the hill sides at various locations were causing instability and slumping on the lower flanks of the hills. Depending upon location, the seeps were probably aggravated by irrigated hay fields and/or ditch seepage directly above the site. Water was also flowing from two adits slightly above the terrace level. This water flowed along channels across the terrace and directly into Rock Creek.

There are a number of concrete foundations and structures, and wood buildings which remain on the site. There are also concrete faced adits at various elevations on the hill slope. Water was flowing from the lowest concrete adit structure. This structure was very deteriorated and dangerous. There was another adit excavated directly in the sandstone to the south. This adit had been closed with a steel grate which was padlocked. The closure grate was in good condition and bolted securely to the sandstone. It was not possible to enter this adit but water flows freely from it.





The past AMR reclamation at this site appears to have been placement of slack material up against a portion of the northeast hill slope, topsoiling, and revegetation. Slack had been spread or placed during mining operations over almost the entire terrace area to a depth of at least two feet or more. There was no topsoil on the slack lying on the flat portion of the site. There was approximately four inches of topsoil on the slack placed against the hill slope. Revegetation on the topsoiled area was reasonably good, despite being inhibited by low water holding capacity in the few inches of root zone available. This area received water from seeps in the hillside which has aided the revegetation process significantly. Revegetation on the terrace was very poor with only scattered areas of grass, erosion channels had also developed in the slack on the terrace.

A large head cut area was present on the extreme north edge of the topsoiled slack that had been pushed against the hillside. The head cut was approximately 180 feet long, 20 feet wide and 10 to 12 feet deep in places. Some seeps were above the head cut, however, surface runoff from a drainage directly above appeared to be the major cause of erosion.

### 1.3 Objectives

1. Sample water emerging from adits and treat if necessary.
2. Demolish deteriorated concrete adit and reclaim adit face. Reclamation of the adit should be such that water can continue to flow freely out of the mine.
3. Regrade slack on terrace, topsoil, seed, and mulch.
4. Construct rock drop in head cut area on reclaimed slack pile.
5. Possibly control seeps in hillside.
6. Remove any concrete foundations that hinder site drainage.



## 2.0 RESPONSIBLE PARTIES

### 2.1 Contractor

#### Prime Contractor:

Maddox Construction  
P.O. Box 277  
Hobson, MT 59452  
Supervisor - David Brown

#### Subcontractors:

Darrel Stark (seed, fertilize & mulch)  
Roberts, MT  
Jim Stroby (fencing)  
Roberts, MT

### 2.2 Engineer

#### Engineering Firm:

HKM Associates  
P.O. Box 31318  
Billings, MT 59107

#### Project Managers:

Dan Nebel, P.G. and  
Craig C. Canfield, P.E.  
Inspectors - Robert Rux and Fred Royce

### 2.3 DSL/AMRB Manager

Dan Koszuta, P.E., R.L.S.



### 3.0 DESCRIPTION OF RECLAMATION CONTRACT

#### 3.1 Bidding & Pre-Construction Administration

- a. *Pre-Bid Conference* - held on site April 30, 1991
- b. *Bid Date* - DSL/AMRB, Helena, May 9, 1991 (2:00 P.M.)
- c. *Bid Tabulation Results* -

Engineers Estimate	\$256,735.00
Maddox Roofing Great Falls, MT	\$232,833.00
Donnes Construction Billings, MT	\$238,559.00
Stillwater Excavation Columbus, MT	\$248,873.40
Envirocon, Inc. Missoula, MT	\$249,000.00
Jarrett Construction Miles City, MT	\$253,730.00
Shumaker Trucking & Excavating Great Falls, MT	\$253,884.00
Montgomery Construction Hilger, MT	\$275,290.00
Bozeman Sand & Gravel Bozeman, MT	\$276,775.30
M-B Excavating Florence, MT	\$282,615.00
Hallett Reclamation Livingston, MT	\$346,239.19

A copy of the Bid Tabulation is included as Attachment #1.

- d. *Contract Award* - Contract was awarded to Maddox Construction on May 20, 1991





- e. *Contract Agreement* - The Agreement between Maddox & DSL/AMRB was made on July 11, 1991
- f. *Notice to Proceed* - Was issued to Maddox Construction on August 8, 1991

### 3.2 Construction Administration

- a. *Pre-Construction Conference* - Held August 9, 1991
- b. *Construction Start-up* - Work began on August 26, 1991
- c. *Project Shut Downs* - Work was suspended on October 18, 1991 at the close of business due to weather.
- d. *Substantial Completion* - A Certificate of Substantial Completion was issued on July 10, 1992. (original contract and change order 1 only)
- e. *Final Approval & Payment* - All site work on the South Red Lodge Dump was completed and accepted by DSL/AMRB on \_\_\_\_\_.  
\_\_\_\_\_.

Final approval and payment was made to Maddox Construction on \_\_\_\_\_ in the amount of \_\_\_\_\_.



### 3.3 Equipment and Methods

#### a. *Type, Make and Model*

<u>TYPE</u>	<u>MAKE/MODEL</u>	<u># ON JOB</u>
Haul Truck/Trailer	GMC (45 C.Y.)	1
Haul Truck/Trailer	Kenworth (30 C.Y.)	1
Patrol	CAT-14E	1
Loader	Bobcat	1
Loader	International 80	1
Compactor	Bros Vibrating Sheeps Foot	1
Dump Truck	Chevy (8 C.Y.)	1
Dozer	CAT D-3	1
Excavator	John Deere	1

#### b. *Contractor Employees -*

<u>DESCRIPTION</u>	<u>NUMBER</u>
Superintendent	1
Operators	2

- c. *Work Description* - Maddox Construction began work on August 26, 1991. Initial efforts were focused on the upper and lower drainage channels and the access road to be cut from above. The contractor also removed the piles of coal slack adjacent to Rock Creek and incorporated them into areas east of the berm constructed between Stas. 5+50 and 11+00 LT. Dry conditions during the first part of September created dusty conditions during the grading operation. The contractor was required to water the area being graded to minimize this problem. During the last half of September and the first half of October



a considerable amount of moisture fell causing some delays. A spring in the topsoil pit made proper incorporation of the line difficult and seepage from the rockface area kept the upper bench wet, further hampering the topsoil operation. The contractor had completed the headcut backfill by 9/20/91 along with most of the necessary grading. Incorporation of lime, topsoiling and riprap placement for the drainage channels continued. The contractor also installed a shaft closure grate for the adit in the existing fanhouse. Modifications to the grate had to be made on site in order to seal the adit properly. Subsidence holes were also backfilled and compacted during the first part of October and this task was completed on 10/12/91. The contractor continued topsoiling and placement of riprap for the drainage channels. All fencing including that for the drainage channels and for the subsidence holes was completed by 10/19/91.

On October 21, 1991 a semi-final inspection of the project was conducted and all items requiring completion or correction were discussed with Maddox Construction. A copy of the letter sent to Maddox Construction with the inspection findings is provided as Attachment No. 5.

During the project shutdown, over the winter months, two change order contracts were negotiated with Maddox Construction at the Department of State Lands request. Change Order No. 1 was to fill a mine subsidence hole east of the fanhouse which had been excluded from the original contract. Change Order No. 2 included maintenance for a number of existing mine sites which had already been reclaimed. Copies of the change orders listing location and items of work are located in the appendix. A third change order was issued as an amendment to Change Order No. 2 due to a math error.





On July 10, 1992 a final inspection was held at the South Red Lodge Dump site. The inspection included work items completed under the original contract and Change Order No. 1. Following the inspection, a Certificate of Substantial Completion was issued along with a list of items which required correction.

### 3.4 Planning and Design

a. *Description* - A previous attempt at reclaiming the South Red Lodge Mine Site had been unsuccessful in that many problems persisted and new problems had become evident. HKM Associates was to evaluate existing problems at the site, recommend remedial action, and prepare plans, specifications, and an engineer's estimate for completing the intended reclamation. The primary work elements are listed below:

- Reclaim large headcut on north end of the project and provide adequate drainage
- Remove coal slack from the edge of Rock Creek without disturbing existing vegetation and provide streambank stabilization as needed.
- Provide adequate topsoil on existing site to allow for establishment of vegetation.
- Backfill existing subsidence holes located on the bench east of the project.
- Install grate over existing adit inside the fan house.

b. *Problems* - None

c. *Considerations* - There were several existing structures on site which were considered for demolition. Upon review by the State Historic Preservation Office a decision was made to leave all structures intact. A





grate was constructed over the adit in the existing fan house but this did not change the exterior appearance of the building.

#### 4.0 COST SUMMARY

##### 4.1 Summary of Pay Items

###### *a. Quantities Used (Original Contract Only)*

<u>ITEM</u>	<u>AMOUNT</u>	<u>UNIT</u>
Excavation	4,000	C.Y.
Imported Topsoil	18,976	C.Y.
Lime Application & Incorporation	293	Tons
Fertilize, Seed & Mulch	14	Acres
Riprap (Types I & II)	913	C.Y.
Bedding Material	187	C.Y.
4" Minus Channel Protection	87	C.Y.
Backfill Subsidence Holes	1	L.S.
Erosion Control Mat	900	S.Y.
Straw Bales	-0-	Each
F4M Farm Fence	2,910	L.F.
Double Panels	17	Each
Single Panels	7	Each
Gate (16')	1	Each
Filter Fabric	895	S.Y.
Shaft Closure Grate	1	L.S.



b. *Change Orders*

<u>CHANGE ORDER NO. 1</u>		
<u>ITEM</u>	<u>AMOUNT</u>	<u>UNIT</u>
Backfill Mine Subsidence Hole East of Fanhouse, South Red Lodge Dump	1	L.S.
<u>CHANGE ORDER NO. 2</u>		

4.2 Summary of Costs

a. *Total Project Cost* - \$232,833.00

b. *Change Order Cost* -

Change Order No. 1 - \$ 3,720.00

Change Order No. 2 - \$43,906.00

Change Order No. 3 - \$ 6,240.00

c. *Consultant Versus Construction Cost Analysis* - See Attachment #4



## **ATTACHMENT 1**





5m158.108

RECEIVED

MAY 14 1991

 DSL/AMRB 91-MO3  
 HKM ASSOCIATES  
 MAY 9, 1991

 SOUTH RED LODGE DUMP MAINTENANCE  
 CARBON COUNTY, MONTANA

BID TABULATIONS				ENGINEER'S ESTIMATE		MADDOX ROOFING GREAT FALLS		DONNES CONSTRUCTION BILLINGS, MT		STILLWATER EXCAVATING COLUMBUS, MT	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	MOBILIZATION	23,000.00	23,000.00	24,000.00	24,000.00	62,500.00	62,500.00	17,000.00	17,000.00
2.	5,000	CY	EXCAVATION	4.00	20,000.00	2.00	10,000.00	2.00	10,000.00	2.80	14,000.00
3.	23,000	CY	PROVIDE IMPORTED COVER SOIL	6.50	149,500.00	5.31	122,130.00	4.03	92,690.00	6.23	143,290.00
4.	280	TON	LIME APPLICATION	40.00	11,200.00	47.00	13,160.00	43.40	12,152.00	44.28	12,398.40
5.	14	ACRE	FERTILIZE, SEED & MULCH	1,000.00	14,000.00	940.00	13,160.00	846.00	11,844.00	1,020.00	14,280.00
6.	155	CY	RIPRAP TYPE I	30.00	4,650.00	40.00	6,200.00	30.00	4,650.00	38.00	5,890.00
7.	620	CY	RIPRAP TYPE II	30.00	18,600.00	43.00	26,660.00	28.50	17,670.00	34.00	21,080.00
8.	155	CY	BEDDING MATERIAL	15.00	2,325.00	20.00	3,100.00	30.00	4,650.00	10.00	1,550.00
9.	80	CY	4-INCH MINUS CHANNEL PROTECTION	20.00	1,600.00	20.00	1,600.00	35.00	2,800.00	8.00	640.00
10.	1	LS	BACKFILL SUBSIDENCE HOLES	1,500.00	1,500.00	1,400.00	1,400.00	5,000.00	5,000.00	7,200.00	7,200.00
11.	1,200	SY	EROSION CONTROL MAT	2.00	2,400.00	1.30	1,560.00	2.80	3,360.00	2.15	2,580.00
12.	50	EA	STRAW BALES FOR EROSION CONTROL	10.00	500.00	2.00	100.00	13.00	650.00	8.00	400.00
13.	3,260	LF	FARM FENCE TYPE F4M	1.00	3,260.00	1.00	3,260.00	1.00	3,260.00	0.65	2,119.00
14.	17	EA	DOUBLE PANELS	80.00	1,360.00	166.00	2,822.00	100.00	1,700.00	110.00	1,870.00
15.	7	EA	SINGLE PANELS	60.00	420.00	140.00	980.00	70.00	490.00	75.00	525.00
16.	1	EA	GATE (16 FOOT)	100.00	100.00	77.00	77.00	160.00	160.00	60.00	60.00
17.	320	SY	FILTER FABRIC	3.50	1,120.00	.70	224.00	2.00	640.00	1.40	448.00
18.	1	LS	SHAFT CLOSURE GRATE	1,200.00	1,200.00	2,400.00	2,400.00	4,343.00	4,343.00	3,543.00	3,543.00



BID TABULATIONS				BOZEMAN SAND & GRAVEL BOZEMAN, MT		M-B EXCAVATING FLORENCE, MT		HALLETT RECLAMATION LIVINGSTON, MT	
Item Number	Estimated Quantity	Unit	Description						
1.	1	LS	MOBILIZATION	10,000.00	10,000.00	14,000.00	14,000.00	7,567.58	7,567.58
2.	5,000	CY	EXCAVATION	4.85	24,250.00	3.40	17,000.00	2.96	14,800.00
3.	23,000	CY	PROVIDE IMPORTED COVER SOIL	6.43	147,890.00	7.04	161,920.00	8.81	202,630.00
4.	280	TON	LIME APPLICATION	66.55	18,654.00	65.00	18,200.00	87.78	24,578.40
5.	14	ACRE	FERTILIZE, SEED & MULCH	1,250.00	17,500.00	1,000.00	14,000.00	1,443.26	20,205.64
6.	155	CY	RIPRAP TYPE I	36.00	5,580.00	35.00	5,425.00	53.46	8,286.30
7.	620	CY	RIPRAP TYPE II	33.50	20,770.00	35.00	21,700.00	55.43	34,366.60
8.	155	CY	BEDDING MATERIAL	20.30	3,146.50	25.00	3,875.00	36.67	5,683.85
9.	80	CY	4-INCH MINUS CHANNEL PROTECTION	23.00	1,840.00	25.00	2,000.00	57.04	4,563.20
10.	1	LS	BACKFILL SUBSIDENCE HOLES	6,720.00	6,720.00	7,500.00	7,500.00	8,341.00	8,341.00
11.	1,200	SY	EROSION CONTROL MAT	5.60	6,720.00	2.50	3,000.00	2.42	2,904.00
12.	50	EA	STRAW BALES FOR EROSION CONTROL	4.50	225.00	3.00	150.00	12.32	616.00
13.	3,260	LF	FARM FENCE TYPE F4M	1.50	4,890.00	2.00	6,520.00	2.30	7,498.00
14.	17	EA	DOUBLE PANELS	125.00	2,125.00	100.00	1,700.00	50.71	862.07
15.	7	EA	SINGLE PANELS	100.00	700.00	75.00	525.00	33.29	233.03
16.	1	EA	GATE (16 FOOT)	200.00	200.00	300.00	300.00	291.76	291.76
17.	320	SY	FILTER FABRIC	5.89	1,884.80	2.50	800.00	3.25	1,040.00
18.	1	LS	SHAFT CLOSURE GRATE	3,700.00	3,700.00	4,000.00	4,000.00	1,771.76	1,771.76
<b>TOTAL</b>					276,775.30		282,615.00		346,239.19

PROJECT AREA AND QUANTITIES BY BID



BID TABULATIONS

Item Number	Estimated Quantity	Unit	Description	ENVIROCON, INC. MISSOULA, MT		JARRETT CONST. INC. MILES CITY, MT		SHUMAKER TRUCKING & EXCAVATING CONTRACTORS INC. GREAT FALLS, MT		MONTGOMERY CONST. HILGER, MT	
1.	1	LS	MOBILIZATION	26,944.33	26,944.33	16,095.00	16,095.00	25,000.00	25,000.00	18,000.00	18,000.00
2.	5,000	CY	EXCAVATION	1.59	7,950.00	3.00	15,000.00	4.00	20,000.00	2.00	10,000.00
3.	23,000	CY	PROVIDE IMPORTED COVER SOIL	5.70	131,100.00	6.70	154,100.00	6.39	146,970.00	7.78	178,940.00
4.	280	TON	LIME APPLICATION	69.41	19,434.80	35.00	9,800.00	45.00	12,600.00	40.00	11,200.00
5.	14	ACRE	FERTILIZE, SEED & MULCH	1,094.67	15,325.38	680.00	9,520.00	700.00	9,800.00	700.00	9,800.00
6.	155	CY	RIPRAP TYPE I	34.88	5,406.40	40.00	6,200.00	25.00	3,875.00	30.00	4,650.00
7.	620	CY	RIPRAP TYPE II	33.49	20,763.80	40.00	24,800.00	25.00	15,500.00	38.00	23,560.00
8.	155	CY	BEDDING MATERIAL	13.95	2,162.25	10.00	1,550.00	20.00	3,100.00	12.00	1,860.00
9.	80	CY	4-INCH MINUS CHANNEL PROTECTION	15.12	1,209.60	15.00	1,200.00	20.00	1,600.00	10.00	800.00
10.	1	LS	BACKFILL SUBSIDENCE HOLES	4,000.00	4,000.00	2,280.00	2,280.00	3,000.00	3,000.00	2,000.00	2,000.00
11.	1,200	SY	EROSION CONTROL MAT	6.26	7,512.00	3.00	3,600.00	2.00	2,400.00	3.00	3,600.00
12.	50	EA	STRAW BALES FOR EROSION CONTROL	14.53	726.50	5.00	250.00	20.00	1,000.00	20.00	1,000.00
13.	3,260	LF	FARM FENCE TYPE F4M	0.70	2,282.00	1.00	3,260.00	1.00	3,260.00	1.00	3,260.00
14.	17	EA	DOUBLE PANELS	104.65	1,779.05	100.00	1,700.00	80.00	1,360.00	200.00	3,400.00
15.	7	EA	SINGLE PANELS	69.77	488.39	75.00	525.00	65.00	455.00	100.00	700.00
16.	1	EA	GATE (16 FOOT)	46.51	46.51	50.00	50.00	64.00	64.00	200.00	200.00
17.	320	SY	FILTER FABRIC	2.01	643.20	2.50	800.00	2.00	640.00	1.00	320.00
18.	1	LS	SHAFT CLOSURE GRATE	1,225.79	1,225.79	3,000.00	3,000.00	3,260.00	3,260.00	2,000.00	2,000.00
TOTAL					249,000.00		253,730.00		253,884.00		275,290.00

2025 MAY 14 09:00 AM



## **ATTACHMENT 2**







**HKM Associates  
Engineers/Planners**

2727 Central Avenue  
P.O. Box 31318  
Billings, Montana 59107-1318  
Phone (406) 656-6399  
Fax (406) 656-6398

Branch Offices:  
Bozeman, Montana/(406) 586-8834  
Miles City, Montana/(406) 232-6666  
Sheridan, Wyoming/(307) 672-9006

June 17, 1992  
F:\WP\08\MI186133\JAH00897.LTR

Ms. Mary Beth Linder  
Department of State Lands  
Capitol Station  
1625 11th Avenue  
Helena, MT 59620

Dear Mary Beth:

Enclosed are the original signed charge orders for South Red Lodge Dump in Carbon County. Copies have been made for my files and Mattox's files. Mattox anticipates beginning work on about June 22, weather permitting, and has estimated a 30 day work period.

If you have any questions, please call.

Sincerely,

HKM ASSOCIATES

A handwritten signature in cursive script, appearing to read 'Ross Waples', written over the printed name.

Ross Waples

RW/jah

Enclosures



# CHANGE ORDER

ORDER NO: 1

PROJECT TITLE: Carbon County Maintenance Project

MONT AVE or DSL-AMRB: 91-M03

CONTRACT DATE: \_\_\_\_\_

OWNER: DEPT State Lands

CONTRACTOR: Maddex Roofing and Construction Great Falls MT

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'L.S.	LABOR	EQUIP.	MISC.	TOTAL UNIT-COST	
1.	Backfill mine subsidence east of concrete fan house lump sum (South Red Lodge Dump)					LUMP \$3720	3720
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							\$3720.00
OVERHEAD & PROFIT @ <u>N/A</u> %							
GRAND TOTAL - THIS CHANGE ORDER							

Original Contract Price	<u>232,833.00</u>
Current Contract Price Adjusted by Previous Change Order	<u>-</u>
Cost this Change Order (+ or -)	<u>+ 3720.00</u>
New Contract Price including this Change Order	<u>236,553.00</u>

The completion date as set forth in the Contract Documents shall be (unchanged/ increased /decreased) by 5 calendar days.

The date for completion of all work will be \_\_\_\_\_.

Description and Justification for Change:

1. A large subsidence hole east of the concrete fan house needs to be filled.

At the time of the original contract H&M was directed by Amvrb not to fill the hole.

The new reclamation supervisor requested (May, 1992) that the hole be filled.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

By: \_\_\_\_\_

Seal

Recommended by: Ross Wiegler

Engineer

5-20-92

Date

Accepted by: Henry Maddy

Contractor

6-5-92

Date

Approved by: <sup>Stacy</sup>  
Bonnie Lovelace

Owner

5-29-92

Date

DMK

RECEIVED

JUN 17 1992

## CHANGE ORDER

HKM ASSOCIATES

ORDER NO: 2PROJECT TITLE: Carbon County Maintenance ProjectMONT AVE or DSL-AMRB: 91-mo3

CONTRACT DATE: \_\_\_\_\_

OWNER: DEPT State LANDSCONTRACTOR: Maddox Roofing and Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES				TOTAL UNIT COST	TOTAL COST
		MAT'L.S.	LABOR	EQUIP.	MISC.		
9.	Foster Gulch Hydro seed/mulch 6 acres					\$1600/Ac	\$3360
10	Gully repair 1440 sq ft of mat & regrade & 1st					\$0.55/sq ft	\$792 *
	<del>Gully repair w/o mat \$0.35/sq ft</del>					<del>\$0.35/sq ft</del>	<del>504</del> * - DMK
* Two options presented. one will be chosen by state							
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						\$4152.00	
OVERHEAD & PROFIT @ _____%							
GRAND TOTAL - THIS CHANGE ORDER							

Original Contract Price

232,833

Current Contract Price Adjusted by Previous Change Order (Change order 1)

3720

Cost this Change Order (+ or -)

New Contract Price including this Change Order

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 120 calendar days.

The date for completion of all work will be \_\_\_\_\_.

Description and Justification for Change:

1. Several sites reclaimed in 1987 and 1990 require erosion control, liming and seeding. These sites are close to South Red Lodge Dump, and it is appropriate to do the maintenance under that contract.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

By: \_\_\_\_\_

Seal

Recommended by: \_\_\_\_\_

Engineer

5-20-92

Date

Accepted by: \_\_\_\_\_

Contractor

6-5-92

Date

Approved by: <sup>5/26/92</sup> DMK \_\_\_\_\_

Owner

5-29-92

Date



# CHANGE ORDER

ORDER NO: 2

PROJECT TITLE: Carbon County Maintenance

MONT AVE or DSL-AMRB: 91-1703

CONTRACT DATE: \_\_\_\_\_

OWNER: DEPT STATE LANDS

CONTRACTOR: MADDOX ROOFING & CONST

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
5.	Virtue Gulch #3 4 subsidence holes - excavate and fill					\$900	\$3600
6.	Smith mine Reseed and mulch 10 Ac					\$930/Ac	\$9300
7.	Gully repair 9600 ft <sup>2</sup> with coconut fiber mat @ 0.55/ft <sup>2</sup>					\$0.55/ft <sup>2</sup>	\$5280 *
	<del>Gully repair w/o mat @ 0.35/ft<sup>2</sup></del>					<del>\$0.35/ft<sup>2</sup></del>	<del>\$3360</del> * DM/C
8.	Bear Creek Mine Dump Lime 1.4 Ac @ 20 T/Ac x \$75/T Top soil 2250 yd <sup>3</sup> x \$5.60/yd <sup>3</sup> Seed and mulch 1.4 Acres x \$930/Ac					\$1500/Ac \$5.60/yd <sup>3</sup> \$930/Ac	\$2100 \$12,600 1302
	* Two options presented. one will be chosen by state.						
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						\$34,182.00	
OVERHEAD & PROFIT @ _____ %							
GRAND TOTAL - THIS CHANGE ORDER							

Original Contract Price

232,833.00

Current Contract Price Adjusted by Previous Change Order

Cost this Change Order (+ or -)

New Contract Price including this Change Order

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_.

Description and Justification for Change:

1.

---

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

By: \_\_\_\_\_

Seal

Recommended by: \_\_\_\_\_

Engineer

5-20-92

Date

Accepted by: \_\_\_\_\_

Contractor

6-5-92

Date

Approved by: \_\_\_\_\_

Owner

5-29-92

Date



# CHANGE ORDER

ORDER NO: 2

PROJECT TITLE: Carbon County Maintenance Project

MONT A/E or DSL-AMRB: 91-1703

CONTRACT DATE: \_\_\_\_\_

OWNER: DEPT State LANDS

CONTRACTOR: Maddox Roofing and Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES				TOTAL UNIT COST	TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.		
1.	Washoe Strip mine Top dress lime on 5 acres 10T/Ac. 50T @ \$75/Ton					\$75/Ac	\$3750
2.	Broadcast seed bare spots 1Ac					\$430/Ac	\$430
3.	Virtue Gulch #1 Reseed and mulch 1 acre					\$930/Ac	\$930
4.	Virtue Gulch #2 Gulley repair 840 ft <sup>2</sup> mat, * labor and seed					\$0.55/ft <sup>2</sup>	\$462
	<del>Gulley repair w/o mat 840 ft<sup>2</sup> *</del>					<del>\$0.35/ft<sup>2</sup></del>	<del>\$294</del>
* Two options presented. one will be chosen by state.							
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						\$5572.00	
OVERHEAD & PROFIT @ _____ %							
GRAND TOTAL - THIS CHANGE ORDER							

\* DMK

Original Contract Price

232,833.00

Current Contract Price Adjusted by Previous Change Order

Cost this Change Order (+ or -)

New Contract Price including this Change Order

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_.

Description and Justification for Change:

1.

### SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

By: \_\_\_\_\_

Seal

Recommended by:

Gloss W. [Signature]  
Engineer

5-20-92

Date

Accepted by:

[Signature]  
Contractor

6-5-92

Date

Approved by:

PMK Bonnie Lovelace  
Owner

5-29-92

Date

**RECEIVED**

AUG 3 1992

CHANGE ORDER

STATE LANDS

PROJECT TITLE: Carbon County Maintenance Project ORDER NO. 3  
MONT A/E or DSL-AMRB: 91-m03  
CONTRACT DATE: \_\_\_\_\_  
OWNER: Dept. of State Lands  
CONTRACTOR: Maddox Roofing and Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
9	Foster Gulch Hydroseed/ mulch - 6 acres * Lump Sum.  * see explanation Page 2						6240
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC. _____							
OVERHEAD & PROFIT @ _____% _____							
GRAND TOTAL - THIS CHANGE ORDER <u>6240</u>							

Original Contract Price

232,833

Current Contract Price Adjusted by Previous Change Order

280,459

Cost this Change Order (+ or -)

6,240

New Contract Price including this Change Order

286,699

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_.

Description and Justification for Change:

1. A mathematical error in change order 2 resulted in an incorrect amount of money being requested for hydro-seeding of Foster Gulch.

The unit price was \$1600/acre. The Total price for 6 acres should have been \$9600 not \$3360.

I am therefore adjusting the requested amount by \$6240 to come up to the proper amount of \$9600.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$\_\_\_\_\_ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

By: \_\_\_\_\_ Seal \_\_\_\_\_  
Recommended by: Ross Waples HCM Assoc 7-28-92  
Engineer Date  
Accepted by: Maddox Roofing & Const Inc. 7/30/92  
Contractor Date  
Approved by: Vic R Andersen 8-4-92  
Owner Date

DMK

Rev. 3/91

## **ATTACHMENT 3**





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SEP 25 1991  
HKM ASSOCIATES

PAYMENT REQUEST NO. 01

RECEIVED

FROM \_\_\_\_\_ TO 9-23-91

OCT - 7 1991

PROJECT TITLE: SOUTH RED LODGE DUMP MAIN ENTRANCE

LOCATION: RED LODGE, MONTANA MONT AVE or DSL-AMRB: 91-M03

NAME OF CONTRACTOR: MADDOX ROOFING AND CONSTRUCTION

ADDRESS: Box 6867 CRT FALLS, MONTANA 59406

SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$ 232,833.00

Change Order No. \_\_\_\_\_

\$ \_\_\_\_\_

Change Order No. \_\_\_\_\_

\$ \_\_\_\_\_

Change Order No. \_\_\_\_\_

\$ \_\_\_\_\_

Amount of Approved Change Order(s)

\$ \_\_\_\_\_

TOTAL CONTRACT AMOUNT

\$ 232,833.00

Pay Request No.	Amount of Request
<u>1</u>	<u>98,373.43</u>

# 8765073

Total Contract Amount Completed to Date

\$ 98,373.43

Less Retainage ( 10 %)

\$ (9837.34)

TOTAL AMOUNT EARNED TO DATE

88,536.09

\$ 98,373.43

Less Previous Payments

0.00

\$ \_\_\_\_\_

AMOUNT DUE THIS PAYMENT

88536.09

\$ 98,373.43

Less 1% Tax

(885.36)

\$ 983.73

TOTAL DUE CONTRACTOR

\$87650.73

\$ 97,389.70

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Maddox Roofing & Const, Inc. PMK - DSL  
Contractor Owner

By Ray Maddox Pres.

By Edward C. Small

Date 9/23/91

Date Oct 3, 1991

RECOMMENDED BY:

HKM Associates  
Engineer

By C. J. Cuffill

Date 10/11/91

PR - 1

31507-0156

RECEIVED

Rev. 10/90

OCT 02 1991

STATE LANDS





[illegible]



# PAYMENT REQUEST NO. 2

NOV - 8 1991

FROM September 24, 1991 TO October 21, 1991

HKM ASSOCIATES

PROJECT TITLE: South Red Lodge Dump Maintenance

LOCATION: Red Lodge, Montana MONT A/E or DSL-AMRB: 91-M03

NAME OF CONTRACTOR: Maddox Roofing and Construction

ADDRESS: P.O. Box 6867, Great Falls, MT 59406

## SUMMARY OF PROJECT STATUS

Amount of Original Contract \$ 232,833.00

Change Order No.        \$                     

Change Order No.        \$                     

Change Order No.        \$                     

Amount of Approved Change Order(s) \$ - 0 -

**TOTAL CONTRACT AMOUNT** **\$ 232,833.00**

Pay Request No.	Amount of Request

Total Contract Amount Completed to Date \$ 199,900.61

Less Retainage (10 %) \$ 19,990.06

**TOTAL AMOUNT EARNED TO DATE** **\$ 179,910.55**

Less Previous Payments \$ 88,536.09

**AMOUNT DUE THIS PAYMENT** **\$ 91,374.46**

Less 1% Tax \$ 913.74

**TOTAL DUE CONTRACTOR** **\$ 90,460.72**

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Maddox Roofing & Const., Inc.  
Contractor

\_\_\_\_\_  
Owner

By Perry Maddox

By \_\_\_\_\_

Date 11/7/91

Date \_\_\_\_\_

RECOMMENDED BY:

HKM Associates  
Engineer

By C. J. Cuffill

Date 11/5/91



PAYMENT REQUEST NO. 2  
ITEMIZATION OF QUANTITIES AND COSTS

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
101	Mobilization	1 LS	24,000.00	1	-0-	1	24,000.00	-0-
102	Excavation	5,000 CY	2.00	2,152	1,508	3,750	7,500.00	3,016.00
103	Provide Imported Cover Soil	23,000 CY	5.31	11,938	7,038	18,976	100,762.56	37,371.78
104	Lime Application	280 Ton	47.00	142.95	139.7	282.65	13,284.55	6,565.90
105	Fertilize, Seed & Mulch	14 Acre	940.00	-0-	-0-	-0-	-0-	-0-
106	Riprap Type I	155 CY	40.00	-0-	385	385	15,400.00	15,400.00
107	Riprap Type II	620 CY	43.00	-0-	528	528	22,704.00	22,704.00
108	Bedding Material	155 CY	20.00	-0-	187	187	3,740.00	3,740.00
109	4" Minus Channel Protection	80 CY	20.00	-0-	80	80	1,600.00	1,600.00
110	Backfill Subsidence Holes	1 LS	1,400.00	-0-	1	1	1,400.00	1,400.00
111	Erosion Control Mat	1,200 SY	1.30	-0-	-0-	-0-	-0-	-0-
112	Straw Bales for Erosion Control	50 EA	2.00	-0-	-0-	-0-	-0-	-0-
113	Farm Fence Type F4M	3,260 LF	1.00	-0-	2,910	2,910	2,910.00	2,910.00
114	Double Panels	17 EA	166.00	-0-	16	16	2,656.00	2,656.00
115	Single Panels	7 EA	140.00	-0-	6	6	840.00	840.00
116	Gate (16')	1 EA	77.00	-0-	1	1	77.00	77.00
117	Filter Fabric	320 SY	0.70	-0-	895	895	626.50	626.50
118	Shaft Closure Gate	1 LS	2,400.00	-0-	1	1	2,400.00	2,400.00
	Materials on Site (Attach Schedule)							
	TOTAL						\$199,900.61	\$101,307.18



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JUL 06 1992

PAYMENT REQUEST NO. 3

FROM Oct. 22, 1991 TO May 30, 1992

RECEIVED

JUN 29 1992

HKM ASSOCIATES

STATE LANDS

PROJECT TITLE: South Red Lodge Dump Maintenance

LOCATION: Red Lodge, Montana MONT A/E or DSL-AMRB: 91-MQ3

NAME OF CONTRACTOR: Maddox Roofing and Construction

ADDRESS: P.O. Box 6867, Great Falls, MT 59406

SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$232,833.00

Change Order No. 1

\$ 3,720.00

Change Order No.       

\$ 43,906.00

Change Order No.       

\$       

Amount of Approved Change Order(s)

\$ 47,020.00

TOTAL CONTRACT AMOUNT

\$ 280,459.00

Pay Request No.	Amount of Request
One	<u>87,650.73</u> <u>88,536.09</u> <i>MAN</i>
Two	<u>80,460.72</u> <u>91,374.46</u>
Three	

Total Contract Amount Completed to Date

\$ 215,340.61

Less Retainage (10 %)

\$ 21,516.06

Subtotal

\$ 193,824.55

Retainage Reduction 2%

\$ 17,209.25

Total Amount Earned to Date

\$ 211,033.80

Less Previous Payments

\$ 179,910.55

AMOUNT DUE THIS PAYMENT

\$ 31,123.25

Less 1% State Withholding

\$ 311.23

TOTAL DUE CONTRACTOR

\$ 30,812.02

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Maddox Roofing & Const.  
Contractor

APPROVED BY:

Vin L. Anderson  
Owner

By Linda Maddox

Date 6-25-92

By \_\_\_\_\_

RECOMMENDED BY:

HKM Associates

Engineer

By [Signature]

Date 6/24/92

Date \_\_\_\_\_

31507-0156

Rev. 3/91





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AUG 11 1992

STATE LANDS

PAYMENT REQUEST NO. 4FROM May 31, 1992 TO July 31, 1992PROJECT TITLE: South Red Lodge Dump MaintenanceLOCATION: Red Lodge, Montana MONT A/E or DSL-AMRB: 91-MQ3NAME OF CONTRACTOR: Maddox Roofing and ConstructionADDRESS: P.O. Box 6867, Great Falls, MT 59406

## SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$ 232,833.00Change Order No. 1\$ 3,720.00Change Order No. 2\$ 43,906.00Change Order No. 3\$ 6,240.00

Amount of Approved Change Order(s)

\$ 53,866.00

TOTAL CONTRACT AMOUNT

\$ 286,699.00

Pay Request No.	Amount of Request
One	88,536.09
Two	91,374.46
Three	31,123.25
Four	26,805.60 mbl.

Total Contract Amount Completed to Date

\$ 245,124.61Less Retainage (10 %)\$ 24,512.46

Subtotal

\$ 220,612.15

\*Retainage Reduction

\$ 17,227.25

Total Amount Earned to Date

\$ 237,839.40

Less Previous Payments

\$ 211,033.80

AMOUNT DUE THIS PAYMENT

\$ 26,805.60

Less 1% State Withholding

\$ 268.06

TOTAL DUE CONTRACTOR

\$ 26,537.54

\*Retainage reduction reflects 2% being withheld on original contract and 10% being withheld on Change Orders 1, 2 and 3.

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Maddox Roofing & Const, Inc.  
Contractor

By Perry Maddox  
Date 8/10-92

RECOMMENDED BY:

HVM Associates  
Engineer

By [Signature]  
Date 8/17/92

RESP. CNTR 31507-0156OBJ. EXP. 2121APPROVED BY: 8-13-92

DATE [Signature]  
Owner

By \_\_\_\_\_

Date \_\_\_\_\_

31507-0156

**PAY REQUEST NO. 4  
ITEMIZATION OF QUANTITIES AND COSTS**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
101	Mobilization	1 LS	24,000.00	1	0	1	24,000.00	0
102	Excavation	5,000 CY	2.00	3,750	0	4,000	8,000.00	0
103	Provide Imported Cover Soil	23,000 CY	5.31	18,976	0	18,976	100,762.56	0
104	Lime Application	280 Ton	47.00	282.65	0	292.65	13,754.55	0
105	Fertilize, Seed & Mulch	14 Acre	940.00	0	0	14	13,160.00	0
106	Riprap Type I	155 CY	40.00	385	0	385	15,400.00	0
107	Riprap Type II	620 CY	43.00	528	0	528	22,704.00	0
108	Bedding Material	155 CY	20.00	187	0	187	3,740.00	0
109	4" Minus Channel Protection	80 CY	20.00	80	0	87	1,740.00	0
110	Backfill Subsidence Holes	1 LS	1,400.00	1	0	1	1,400.00	0
111	Erosion Control Mat	1,200 SY	1.30	0	0	900	1,170.00	0
112	Straw Bales for Erosion Control	50 Each	2.00	0	0	0	0.00	0
113	Farm Fence Type F4M	3,260 LF	1.00	2,910	0	2,910	2,910.00	0
114	Double Panels	17 Each	166.00	16	0	16	2,656.00	0
115	Single Panels	7 Each	140.00	6	0	6	840.00	0
116	Gate (16')	1 Each	77.00	1	0	1	77.00	0
117	Filter Fabric	320 SY	0.70	895	0	895	626.50	0
118	Shaft Closure Grate	1 LS	2,400.00	1	0	1	2,400.00	0
SUBTOTAL ORIGINAL CONTRACT							\$215,340.61	0

**PAY REQUEST NUMBER 4**  
**ITEMIZATION OF QUANTITIES AND COSTS**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed To Date	Amount Due this Payment
<b>CHANGE ORDER NO. 1</b>								
	<u>South Red Lodge Dump</u>							
1	Fill Subsidence Hole	1 L.S.	3,750.00	0	1	1	3,720.00	3,720.00
<b>CHANGE ORDER NO. 2</b>								
	<u>Washoe Strip Mine</u>							
1	Lime	75 Ton	50.00	0	75	75	3,750.00	3,750.00
2	Broadcast Seed	1 Acre	430.00	0	0	0	0	0
	<u>Virtue Gulch #1</u>							
3	Disc, reseed and mulch	1 Acre	930.00	0	0	0	0	0
	<u>Virtue Gulch #2</u>							
4	Gulley Repair	1 L.S.	462.00	0	1	1	462.00	462.00
	<u>Virtue Gulch #3</u>							
5	Fill subsidences	4 Each	900.00	0	4	4	3,600.00	3,600.00
	<u>Smith Mine</u>							
6	Reseed, mulch	10 Acres	930.00	0	0	0	0	0
7	Gulley Repair	1 L.S.	5,280.00	0	1	1	5,280.00	5,280.00
	<u>Bear Creek Mine Dump</u>							
8	Lime	28 Ton	75.00	0	28	28	2,100.00	2,100.00
	Topsoil	2,250 C.Y.	5.60	0	1,800	1,800	10,080.00	10,080.00
9	Hydroseed	6 Acres	560.00	0	0	0	0	
10	Gulley Repair	1 L.S.	792.00	0	1	1	792.00	
<b>CHANGE ORDER NO. 3</b>								
	<u>Foster Gulch</u>							
1	Correct Math Error in Change Order No. 2, Item No. 9	1 L.S.	6,240.00	0	0	0	0	0
<b>SUBTOTAL CHANGE ORDERS</b>							29,784.00	29,784.00
<b>TOTAL PROJECT</b>							\$245,124.61	\$29,784.00



## **ATTACHMENT 4**



ANALYSIS OF CONSULTANT COSTS INCURRED  
 FOR THE MONTANA DEPARTMENT OF STATE LANDS  
 ABANDONED MINE RECLAMATION BUREAU  
 AMR PROJECT NUMBER: DSL-AMRB 91-MO3  
 SOUTH RED LODGE DUMP MAINTENANCE  
 DATE OF PREPARATION: August 26, 1992

ENGINEERING SERVICE	AMOUNT
*****	
DESIGN ENGINEERING:	
1991 Contract	<u>          </u>
SUBTOTAL DESIGN ENGINEERING COST:	<u>43,834.85</u>
CONSTRUCTION ENGINEERING AND	
PROJECT ADMINISTRATION COST:	<u>24,368.92</u>
1991 CONTRACT	
PROJECT ENGINEERING COST:	<u>68,203.77</u>
	<u>          </u>
CONSTRUCTION COST:	<u>288,699.00</u>

\*\*\*\*\*

TO CALCULATE PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:

DESIGN ENGINEERING/CONSTRUCTION COST	<u>15.2%</u>
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	<u>8.4%</u>
TOTAL ENGINEERING COST/CONSTRUCTION COST	<u>23.6%</u>

\*\*\*\*\*

Note: Costs above are for original contract in addition to  
 change orders 1, 2, and 3 to date. Acceptance and final  
 payment is still pending.





## **ATTACHMENT 5**





October 24, 1991  
F:\WP\08\186126\CMC00109.LTR

**HKM Associates  
Engineers/Planners**

2727 Central Avenue  
P.O. Box 31318  
Billings, Montana 59107-1318  
Phone (406) 656-6399  
Fax (406) 656-6398

Branch Offices:  
Bozeman, Montana/(406) 586-8834  
Miles City, Montana/(406) 232-6666  
Sheridan, Wyoming/(307) 672-9006

Mr. David Brown  
Maddox Roofing and Construction  
P.O. Box 6867  
Great Falls, MT 59406

RE: South Red Lodge Dump Maintenance  
DSL-AMRB 91-M03

Dear Mr. Brown:

Attached is a punchlist of items which need to be completed. The punchlist was compiled based on the inspection held October 21, 1991.

In accordance with Section 14.3 of the General Conditions after the above work items have been completed and the project is ready for its intended use you will need to notify the DSL-AMRB and HKM that the project is substantially complete and request that a Certificate of Substantial Completion be issued. At that time a final inspection will be scheduled.

If there should be any questions, please call.

Sincerely,

HKM ASSOCIATES

A handwritten signature in black ink, appearing to read 'Craig C. Canfield'. The signature is fluid and cursive, with a large, sweeping 'C' at the beginning and a long, horizontal stroke at the end.

Craig C. Canfield, P.E.

CCC/cc

cc: Bob Rux, HKM Associates  
Dan Koszuta, DSL-AMRB



SOUTH RED LODGE DUMP MAINTENANCE

DSL-AMRB 91-M03

SEMI-FINAL INSPECTION

OCTOBER 21, 1991 - 10:00 A.M.

A semi-final inspection was held at the project site on October 21, 1991. The following individuals were present:

Dan Koszuta	DSL-AMRB
Dave Brown	Maddox Construction
Bob Rux	HKM Associates
Chad Phillips	HKM Associates
Craig Canfield	HKM Associates

Work on the project is nearing completion. The following items require completion or correction.

1. The upper interceptor channel has not been constructed as shown on the typical section of the plans. The channel was considerably smaller than the typical section shown on the plans particularly at the angle point where it turns to enter the rock channel at Sta. 25+00.
2. Between Sta. 12+50 and Sta. 14+00 on the lower interceptor channel a berm on the left side had been constructed making the effective depth of the channel greater than necessary. This berm should be removed to allow runoff to enter the interceptor ditch without being diverted by the berm.
3. The channel protection stone needs to be extended back of approximately Sta. 20+30 on the upper interceptor channel. This segment was not protected with channel protection stone and will be eroded due to the existing base flow. The channel protection stone needs to be the same as previously placed. The existing base flow should follow its original course. This will require removal of the embankment placed to



construct the access road. The 4" PVC pipe used to divert the water needs to be removed and the fence lowered after the work has been completed.

4. The bottom of the shaft closure grate needs either to have another bar welded across the bottom or the area needs to be graded. A gap in excess of 6" existed at the bottom of the grate. The large grate needs to be welded at the bottom.
5. The site, including subsidence holes, needs to be fertilized, seeded and mulched. The site needs to be disced to a friable condition prior to seeding. All mounds, ruts, etc. should be leveled. All clods, rocks over six inches in diameter, trash, etc. need to be removed. Material certification on fertilizer needs to be submitted.
6. Erosion control mat needs to be placed in all areas specified.
7. Removal of cable on east boundary at approximately Sta. 7+50 on the lower interceptor ditch. Cable was placed outside construction limits prior to topsoiling.
8. Completion of fence at subsidence holes after completion of seeding, fertilizing and mulching.
9. Finish placing topsoil along north boundary.
10. Removal of topsoil around all power poles down to treatment. Removal of topsoil around all guy anchor attachments. Removal needs to provide drainage away from both poles and guy anchors.





## **ATTACHMENT 6**



## **ATTACHMENT 7**



STATE OF MONTANA

AFFIDAVIT ON BEHALF OF CONTRACTOR

JUL 21 1992

STATE LANDS

STATE OF Montana

MOIT A/E 91-M03

COUNTY OF Cascade

DATE 6-30-92

I certify to the best of my knowledge and belief that all work has been performed and materials supplied in strict accordance with the terms and conditions of the corresponding contract document between \_\_\_\_\_

Dept of State Lands Montana the OWNER,  
and Maddox Roofing & Construction, Inc. the CONTRACTOR,

Dated 6-30-92 for the Red Lodge Dump Maintenance  
Project

and further declare that all bills, for materials, supplies, utilities and for all other things furnished or caused to be furnished by the above named contractor and used in the execution of the above contract have been fully paid, and that there are no unpaid claims or demands of State Agencies, sub-contractors, material men, mechanics, laborers or any others resulting from or arising out of any work done or ordered to be done by said contractor under the above identified contract.

In consideration of the prior and final payments made and all payments made for authorized changes, the contractor releases and forever discharges the OWNER from any and all obligations and liabilities arising by virtue of said contract and authorized changes between the parties hereto, either verbal or in writing, and any and all claims and demands of every kind and character whatsoever against the OWNER, arising out of or in any way relating to said contract and authorized changes.

This statement is made for the purpose of inducing the OWNER to make FINAL PAYMENT under the terms of the contract, relying on the truth and statements contained therein.

DATED 6-30-92 CONTRACTOR Maddox Roofing & Construction, Inc

Great Falls, MONTANA SIGNED BY \_\_\_\_\_ Pres.

Subscribed and sworn to before me this 30 day of June, 19 92

(SEAL)

Notary Public for the State of Montana  
My Commission Expires 6/5/93

Linda Maddox



## CONTRACTOR'S CERTIFICATE OF COMPLETION

TO (Owner): Department of State Lands DATE: July 10, 1992  
Abandoned Mine Reclamation Bureau PROJECT TITLE: South Red Lodge  
1625 Eleventh Avenue Dump Maintenance  
Helena, Montana 59620 MONT A/E or DSL-AMRB: 91-MO3  
ATTN: Engineer Dan Koszuta CONTRACT DATE: July 11, 1991

FROM: Maddox Roofing and Construction, Great Falls, Montana  
(Firm or Corporation)

This is to certify that I, Linda Maddox, am an authorized official of  
Maddox Roofing & Const., Inc., working in the capacity of  
Sec/Treas. and have been properly authorized by said firm or corporation to  
sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the Contract Plans and Specifications.

The work included in the original contract and Change Order No. 1 is now complete in all parts and requirements and ready for your substantial completion inspection.

I understand that neither the determination of the Engineer that the work is complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

CONTRACTOR: Maddox Roofing & Const., Inc.

By: Linda Maddox Sec/Treas.  
Title

RECEIVED  
JUL 17 1992  
HKM ASSOCIATES





JUL 28 1992

STATE LANDS

## CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: Department of State Lands-Abandoned Mine Reclamation Bureau OWNERPROJECT TITLE: South Red Lodge Dump MaintenanceMONT A/E or DSL-AMRB: 91-MO3CONTRACT DATE: July 11, 1991LOCATION: Red Lodge, MontanaPROJECT OR PART SHALL INCLUDE: OriginalContract and Change Order No. 1CONTRACTOR: Maddox ConstructionADDRESS: P.O. Box 6867Great Falls, MT 59406TELEPHONE NO: (406) 771-7410SUBSTANTIAL COMPLETION DATE: July 10, 1992DSL INSPECTION DATE: July 10, 1992ENGINEER: HKM Associates, P.O. Box 31318,Billings, Montana 59107PERFORMANCE BOND NO: TPI-3222593DATE OF BOND: July 11, 1992SURETY: TransAmerica Premier Insurance Co.MONTANA AGENT: John D. LeafFlynn Insurance CompanyADDRESS: Great Falls, Montana

The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be substantially completed on the above date.

## DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so the

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

ENGINEER:

HKM Associates

By

[Signature]  
Authorized Representative

Date

The Contractor accepts the above Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR:

Maddox Roofing & Const., Inc.

By

[Signature]  
Authorized Representative7-15-92

Date

The Owner accepts the Project or specified area of the Project as substantially complete and will assume full possession of the project or specified area at 12:01 A.M. (time), on June 15, 1992 (date). The responsibility for heat, utilities, security, and insurance under the Contract Documents shall be as set forth under "Remarks" below.

OWNER:

By

[Signature]  
Authorized Representative

Date

Remarks: (Attach additional sheet, if necessary)



ATTACHMENT TO CERTIFICATE OF SUBSTANTIAL COMPLETION  
SOUTH RED LODGE DUMP MAINTENANCE  
DSL-AMRB 91-MO3  
JULY 13 1992

A final inspection on the South Red Lodge Dump Maintenance was held on July 10, 1992. The inspection included the work items completed under the original contract and Change Order No. 1. Bonds and insurance shall remain in effect following final payment as defined in Article 5 of the General Conditions. The following items need to be corrected.

Original Contract

1. The fuel storage tank used by the Contractor needs to be removed from the site.

Change Order No. 1

1. The haul road used by the Contractor for access to the mine opening needs to be graded smooth and reclaimed. The area disturbed surrounding the min opening should be graded to remove any remaining piles of dirt, rocks and the area reclaimed.
2. The barbed wire fence which was cut to provide access to the site needs to be restored.



## **ATTACHMENT 8**



OCT 16 1991

HKM ASSOCIATES

Braun Intertec Engineering, Inc.  
6200 South Frontage Road  
P.O. Box 30697  
Billings, Montana 59107-0697  
406-652-3930 Fax: 652-3944

Engineers and Scientists Serving  
the Built and Natural Environments

RESULTS OF SOUNDNESS TEST  
ASTM C80

Date: October 14, 1991

Project: BHDX-91-219L LABORATORY TESTING  
Channel Protection  
Aggregate  
Red Lodge, MT

Reported To: Mr. Craig Canfield  
HKM Associates  
P. O. Box 31318  
Billings, MT 59107

Copies To:

Channel Protection Aggregate

SIEVE SIZE		Grading of Original Sample %			Weight of Fraction Before Test	Actual % Loss	Weighted Average % Loss
Passing	Retained						
		COARSE AGGREGATE					
2 1/2"	1 1/2"	59	59	59.0	5036.0	3.0	1.8
1 1/2"	3/4"	90	31	31.0	1510.0	3.2	1.0
3/4"	3/8"	96	6	6.0	969.0	2.3	0.1
3/8"	No. 4	100	4	4.0	300.0	5.0	0.2
TOTALS			100	100.0	7815.0		3.1

REMARKS:

L.A. Abrasion — ASTM C535

% wear 40%

HKM ASSOCIATES //

Braun Intertec Engineering, Inc.

CK'D BY [Signature] ☒ NO EXCEPTION NOTED

DATE IN 10/16/91 ☐ CORRECTIONS REQUIRED

DATE 10/16/91 ☐ RESUBMIT

The design of the project is in accordance with the plans and specifications. The project is in accordance with the other trades.

[Signature]  
Bryan J. Klein  
Engineering Technician III





RECEIVED  
SEP 20 1991  
HKM ASSOCIATES

Braun Intertec Engineering, Inc.  
6200 South Frontage Road  
P.O. Box 30697  
Billings, Montana 59107-0697  
406-652-3930 Fax: 652-3944

Engineers and Scientists Serving  
the Built and Natural Environments

PROPERTY TEST OF AGGREGATE

Date: September 17, 1991

Project: BHDx-91-185L LABORATORY TESTING  
Red Lodge Reclamation  
Project  
Red Lodge, MT  
HKM Associates  
Attn: Craig Canfield

Reported To: Ms. Linda Maddox  
Maddox Construction  
P. O. Box 5857  
Great Falls, MT 59406

Copies To:

<u>Sample No.</u>	<u>Test</u>	<u>Results</u>	<u>Specifications</u>
Riprap (Bedding)	L.A. Abrasion - ASTM C131 (% wear)	41%	Max 50%

REMARKS:

BRAUN INTERTEC ENGINEERING, INC.

CK'D BY  
DATE IN

HKM ASSOCIATES 8

☒ NO EXCEPTION NOTED  
☐ CORRECTIONS REQUIRED

*Bryan J. Klein*  
Bryan J. Klein  
Engineering Technician III



RESULTS OF SOUNDNESS TEST  
ASTM C80

Date: September 18, 1991      Project: BHDx-91-185L LABORATORY TESTING  
Red Lodge Reclamation  
Project  
Red Lodge, MT  
Reported To: Ms. Linda Maddox      Copies To: HKM Associates  
Maddox Construction      Attn: Craig Canfield  
P. O. Box 5857  
Great Falls, MT 59406

Sample ID: Riprap Bedding Material

SIEVE SIZE		Grading of Original Sample %			Weight of Fraction Before Test	Actual % Loss	Weighted Average Loss
Passing	Retained						
		FINE AGGREGATE					
30	50	10	9	16.7	100	14.5	2.4
16	30	19	13	24.1	100	14.4	3.5
8	16	32	11	20.4	100	8.0	1.6
4	8	43	10	18.5	100	8.0	1.5
3/8"	4	53	11	20.4	100	13.0	2.7
TOTALS			54	100.0			11.7
		COARSE AGGREGATE					
3"	2 1/2"	88	12	25.5	3861	0.03	0.01
2 1/2"	1 1/2"	80	8	17.0	2489	11.5	2.0
1 1/2"	3/4"	72	8	17.0	1524	8.8	1.5
3/4"	3/8"	64	8	17.0	989	15.0	2.6
3/8"	No. 4	53	11	23.4	297	13.0	3.0
TOTALS			47	100.0			9.1

REMARKS:

Spec 106

Braun Intertec Engineering, Inc.

  
Bryan J. Klein  
Engineering Technician III



LABORATORY TEST OF AGGREGATE

Date: September 18, 1991      Project: BHDX-91-185L

LABORATORY TESTING  
Red Lodge Reclamation  
Project  
Red Lodge, MT  
HKM Associates  
Attn: Mr. Craig Canfield

Reported To: Ms. Linda Maddox  
Maddox Construction  
P. O. Box 5857  
Great Falls, MT 59406

Copies To:

SAMPLE DATA:

Sample No.:

Source:

Purposes: Riprap Bedding Material

SIEVE ANALYSIS: (AASHTO T-11 & T-27)

<u>Coarse Sieve</u>	<u>% Passing</u>	<u>Specifications</u>
4"	100	100
2 1/2"	88	
2"	83	
1 1/2"	80	
1"	75	
3/4"	72	
1/2"	68	
3/8"	64	
#4	53	Min. 50
<u>Fine Sieve</u>		
#8	43	
#16	32	
#30	19	
#50	10	
#100	6.3	
#200	4.3	Max. 15

PROPERTIES:

<u>Test</u>	<u>Results</u>	<u>Specifications</u>
-------------	----------------	-----------------------

REMARKS:

Braun Intertec Engineering, Inc.

  
Bryan J. Klein  
Engineering Technician III



Sample #: \_\_\_\_\_ Source: PALMER Date Sampled: 9-9Selected By: OB Weight (☐ wet ☐ dmp ☐ dry): \_\_\_\_\_ Date Received: \_\_\_\_\_Purpose: BEDDING (RIPPED) + CHANNEL LINER

Specifications

SIEVE ANALYSIS: (☐ AASHTO T27 & T11 ☐ MT 202 ☐ ASTM C136 & C117)Weight of total test sample, dry, A = 14628 + 16616 = 31,244

Coarse Sieves	Cumulative Weights, K	% Retained, R R=K:Ax100	% Passing P=100-R
3"	0		100
2 1/2"	5873	12.4	88
2"	755 + 796 = 5424	17.4	83
1 1/2"	0 + 950 = 6374	20.4	80
1"	834 + 655 = 7863	25.2	75
3/4"	343 + 480 = 8686	27.8	72
5/8"			
1/2"	624 + 740 = 10,050	32.2	68
3/8"	1142 = 11192	35.8	64
#4	3450 = 14642 = K#4	46.9 = R#4	53

Weight in pan, B = 16390 gm.; Loss, L = A - B - K#4 = 212 % Loss = L:Ax100 = 0.7 (Max. 0.3%)Weight split for wash, a = 982.0 gm.  
Dry weight after wash, a' = \_\_\_\_\_ gm.  
Factor, F =  $\frac{100 - R\#4}{100} = \frac{53}{100} = 0.531$ 

Fine Sieves	Cumulative Weights of Split Portion, k	% Split Retained, r r=k-a'x100	% Split Passing, p p=100-r	(Fxp)
#8	183.4	18.7	81	43
#10				
#16	385.8	39.3	61	32
#20				
#30	623.7	63.5	37	19
#40				
#50	788.5	80.3	19.7	10
#100	866.4	88.2	11.8	6.3
#200	902.5	91.9	8.1	4.3

Pan = k' Loss, l = a' - k' = \_\_\_\_\_ gm; % Loss =  $\frac{l}{a'} \times 100 =$  \_\_\_\_\_ (Max 0.3%)

## REMARKS:

- ☐ Weight of field sample was less than the weight specified by test procedures.
- ☐ Cobbles exceeding 4" sieve size were not included in the sieve analysis.  
Approximately \_\_\_\_\_ % of the sample exceeded the 4" size.
- ☐ Sample was crushed in a laboratory 4" x 6" jar crusher. Results of production crushing will likely differ from results of laboratory crushing.
- ☐ Weight of sieve analysis sample was less than weight specified by test method.
- ☐ Drying of sample was accelerated on stove for sieve analysis test. Results may be used quality control purposes but may not meet criteria for acceptance testing.
- ☐ Coarse aggregate was not washed for sieve analysis.
- ☐ Results were phoned to Mr. (Ms.) \_\_\_\_\_ of \_\_\_\_\_ on \_\_\_\_\_, 199\_, at \_\_\_\_\_ a.m. (p.m.).

- ☐ Sample met gradation specification.
- ☐ \*Sample did not meet gradation specification on this (these) sieve(s).

Tech: \_\_\_\_\_





**LABORATORY REPORT**

TO: Maddox Constuction  
ADDRESS: Box 6867  
Great Falls, Mt. 59406

LAB NO.: 91-32219  
DATE: 09/09/91 crp

SOIL ANALYSIS

Submitted 08/23/91

Sample Number 32219  
Location Palmer  
Red Lodge

pH 6.2  
Saturation % 38.3  
ESP 0.52  
Organic Matter, % 4.7  
Nitrate as N, ug/g <1  
Phosphorus, ug/g 4.7  
Potassium, ug/g 345  
Lime as CaCO3 % <0.1  
Neut. Pot., (1) <1  
Acid Pot., meq/100g <1  
Acid-Base Pot., (1) 0

CK'D BY

DATE IN

DATE OUT

This review is only for conformance with the design concept and compliance with the contract documents. The contractor is responsible for conformance with the plans and specifications and coordination with the other trades.

(1) T CaCO3/1000 Tons



# RESULTS OF SOUNDNESS TEST ASTM C80

Date: 9/16/91

Project: B-HX-91-185C

Reported To:

Copies To:

MADON CONSTRUCTION

SIEVE SIZE		Grading of Original Sample %			Weight of Fraction Before Test	Actual % Loss	Weighted Average Loss
Passing	Retained						
		FINE AGGREGATE					
<del>No. 100</del>							
<del>50</del>	<del>100</del>						
30	50	10	9	16.7	100	14.5	2.4
16	30	19	13	24.1	"	14.4	3.5
8	16	32	11	20.4	"	8.0	1.6
4	8	43	10	18.5	"	8.0	1.5
3/8"	4	53	11	20.4	"	13.0	2.7
TOTALS			5A	100			11.7

COURSE AGGREGATE							
3"	2 1/2"	88	12	25.5	3864	6.03	0.01
2 1/2"	1 1/2"	80	8	17.0	2489.3	11.5	2.0
1 1/2"	3/4"	72	8	17.0	1524.8	8.8	1.5
3/4"	3/8"	64	8	17.0	989.8	15.0	2.6
3/8"	No. 4	53	11	23.4	297.0	13.0	3.0
TOTALS			47	100.0			9.1

REMARKS:

HKM ASSOCIATES 9A

CK'D BY

DATE IN

DATE OUT

☐ NO EXCEPTION NOTED

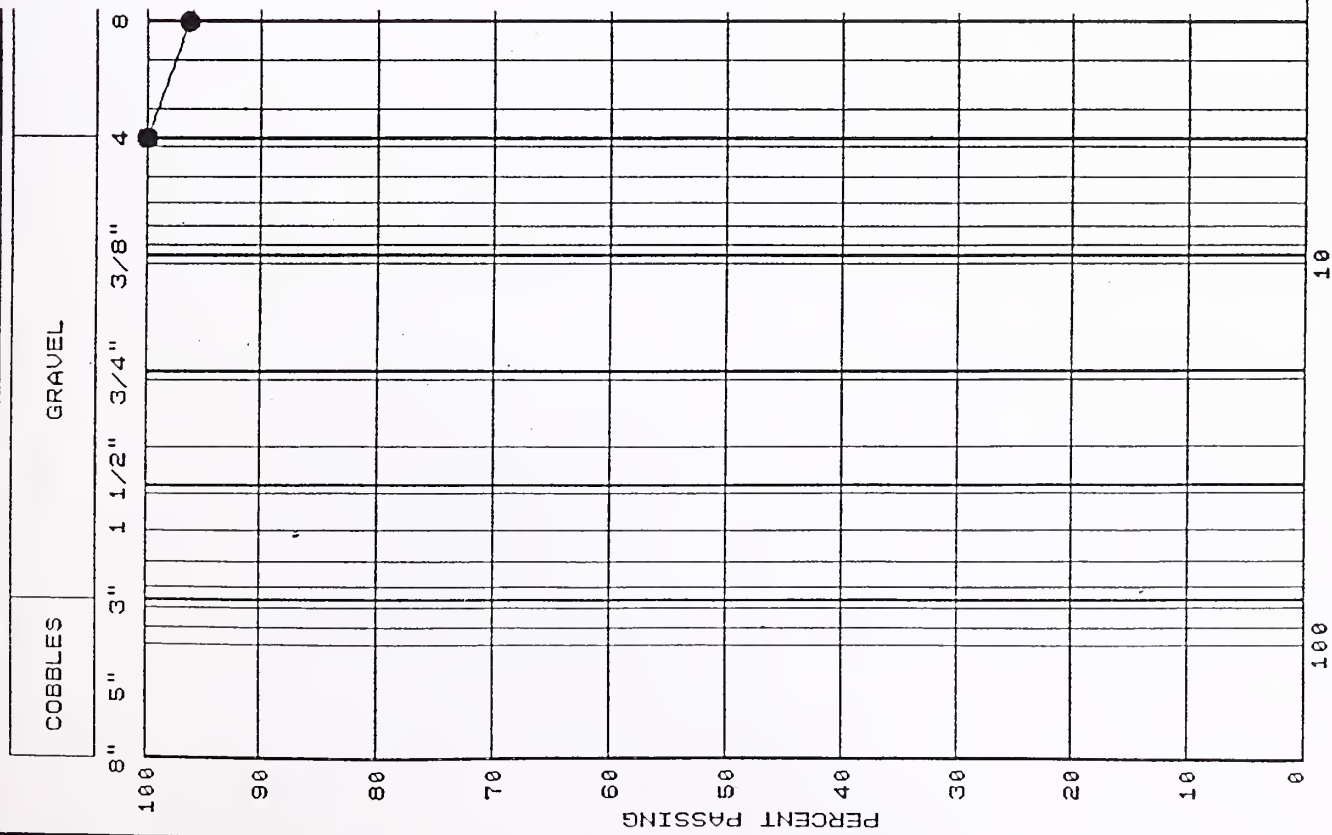
☐ CORRECTIONS REQUIRED

Braun Intertec Engineering, Inc.

The contractor is responsible for the design, construction, and maintenance of the project. The contractor is responsible for the design, construction, and maintenance of the project. The contractor is responsible for the design, construction, and maintenance of the project.



# GRAIN



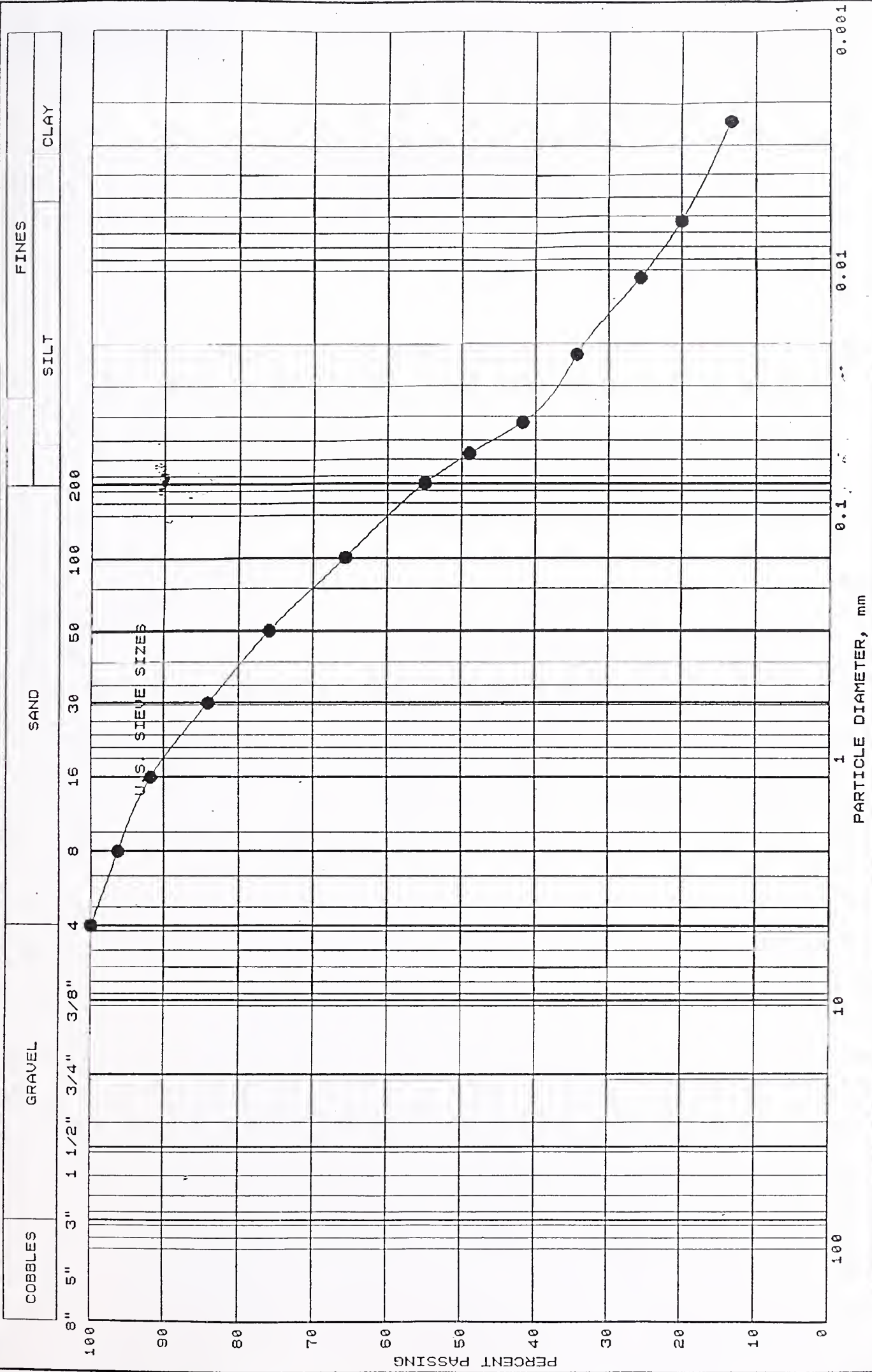
H&H ASSOCIATES, P.C.  
 16/12/91  
 DATE IN  
 16/12/91  
 DATE OUT  
 SEE COVER LETTER  
 and specifications and coordination with the other trades.  
 contractor is responsible for conformance with the plans  
 concept and compliance with the contract documents. The  
 this review is only for conformance with the design

PARTICLE DIAMETER, mm

<p><b>BRAUN</b></p> <p>INTERTEC</p>	<p>PROJECT NO.: BHDX-91-185L</p> <p>Red Lodge Reclamation Project</p> <p>Red Lodge, Montana</p> <p>SAMPLE NO.: Top Soil #1</p> <p>DEPTH:</p>	<table border="1"> <tr> <td>% GRAVEL:</td> <td>0.0</td> <td>LIQUID LIMIT:</td> </tr> <tr> <td>% SAND:</td> <td>45.1</td> <td>PLASTIC LIMIT:</td> </tr> <tr> <td>% SILT:</td> <td>36.5</td> <td>PLASTICITY INDEX:</td> </tr> <tr> <td>% CLAY:</td> <td>18.3</td> <td>CLASSIFICATION:</td> </tr> </table>	% GRAVEL:	0.0	LIQUID LIMIT:	% SAND:	45.1	PLASTIC LIMIT:	% SILT:	36.5	PLASTICITY INDEX:	% CLAY:	18.3	CLASSIFICATION:
% GRAVEL:	0.0	LIQUID LIMIT:												
% SAND:	45.1	PLASTIC LIMIT:												
% SILT:	36.5	PLASTICITY INDEX:												
% CLAY:	18.3	CLASSIFICATION:												

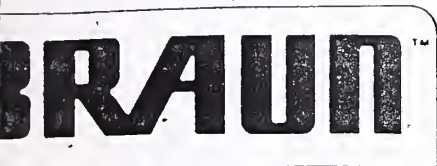


# GRAIN SIZE ANALYSIS CURVE









BHDX-91-155L

Rip Rap Channel Base

SANDY SILT, non-sl. pl; with some scoria  
level & organics. dk brown

84.5 pcf Max Den.  
at 23.0% Moisture

Head Cut Back Fill

SILTY CLAY, med-High pl; Tr. coal + scoria  
olive brown + black

104.0 Max Den.  
18.5% Moisture

Received 9-13-91

THIN ASSOCIATES C

CHECK BY

DATE IN

DATE OUT

RR  
9/18/91  
9/19/91

☒ NO EXCEPTIONS

☐ CORRECTIONS REQUIRED

☐ REUSE AND RESUBMIT

This review is only for conformance with the design  
concept and compliance with the contract documents. The  
contractor is responsible for conformance with the plans  
and specifications and coordination with the other trades



RECEIVED

SEP 19 1991

HKM ASSOCIATES

Braun Intertec Engineering, Inc.  
6200 South Frontage Road  
P.O. Box 30697  
Billings, Montana 59107-0697  
406-652-3930 Fax: 652-3944

Engineers and Scientists Serving  
the Built and Natural Environments

PROPERTY TEST OF AGGREGATE

Date: September 17, 1991

Project: BHDx-91-185L LABORATORY TESTING  
Red Lodge Reclamation  
Project  
Red Lodge, MT  
Copies To: HKM Associates  
Attn: Craig Canfield

Reported To: Ms. Linda Maddox  
Maddox Construction  
P. O. Box 5857  
Great Falls, MT 59406

<u>Sample No.</u>	<u>Test</u>	<u>Results</u>	<u>Specifications</u>
Riprap (Limestone)	L.A. Abrasion-ASTM C131 (% wear)	35%	

REMARKS:

CLERK  
DATE IN  
DATE OUT  
TIME

HKM ASSOCIATES 7  
9/19/91  
9/19/91  
☐ NO EXCEPTION NOTED  
☐ CORRECTIONS REQUIRED  
☐ TESTED AND RESUBMIT

BRAUN INTERTEC ENGINEERING, INC.

*Bryan J. Klein*  
Bryan J. Klein  
Engineering Technician III



**RESULTS OF SOUNDNESS TEST  
ASTM C80**

Date: September 17, 1991

Project: BHDX-91-185L LABORATORY TESTING  
Red Lodge Reclamation  
Project

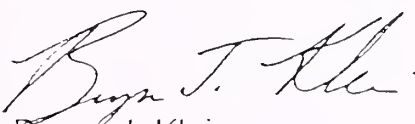
Reported To: Ms. Linda Maddox  
Maddox Construction  
P. O. Box 6867  
Great Falls, MT 59406

Copies To: HKM Associates  
Attn: Mr. Craig Canfield

SIEVE SIZE		Grading of Original Sample %			Weight of Fraction Before Test	Actual % Loss	Weighted Average Loss
Passing	Retained						
		COURSE AGGREGATE					
- 3/4"	+ 1/2"			16.67%	670.0	4.8	0.8
- 1"	+ 3/4"			16.67%	520.0	7.8	1.3
- 1 1/2"	+ 1"			16.67%	1000.5	2.2	0.4
- 2"	+ 1 1/2"			16.67%	2105.0	1.6	0.3
- 2 1/2"	+ 2"			16.67%	2960.0	0.5	0.1
- 3"	+ 2 1/2"			16.67%	7051.0	0.4	0.1
TOTALS				100.00%			3.0

REMARKS:

Braun Intertec Engineering, Inc.



Bryan J. Klein  
Engineering Technician III



## **ATTACHMENT 9**





South Red Lodge Dump Maintenance  
Preconstruction Meeting Minutes  
August 9, 1991  
Pollard Hotel - Red Lodge, Montana

I. Project Organization

A. Department of State Lands

Dan Koszuta - Project Manager

B. HKM Associates

Craig Canfield - Project Manager

Bob Rux - Project Inspector

Gary Simonich - Construction Division D.D.

C. Maddox Roofing

Mel Aamold - Project Manager

Phone No. 771-7410

Great Falls, MT

Dave Brown - Project Superintendent

Mel Aamold and Dave Brown will share responsibility.

- D. Subcontractors - Subs will <sup>NOT</sup> be used unless time becomes a big factor and then probably just for fencing.

II. Scope of the Project

A. Revegetate exposed coal slack

1. Lime
2. Topsoil
3. Fertilize, seed and mulch

B. Erosion Control

1. Construct drainage channels
2. Rock lined drop structures
3. Remove coal slack from streambank
4. Erosion control mat at streambank and headcut



- C. Fencing of revegetated areas
- D. Backfill subsidence holes

### III. Lines of Communication

- A. HKM is acting as the representative of the Department of State Lands on this project. All communication by the Contractor should go through HKM first. Contact Dave Koszuta if there is a problem contacting someone at HKM.
- B. All communication from subcontractors should come through Maddox. As questions arise in the field from subcontractors, the job superintendent should be notified in addition to HKM's inspectors.
- C. Maddox will be required to have a job superintendent on site at all times. The superintendent will be the Contractor's representative and shall have the authority to act on the Contractor's behalf (GC-6.2). Maddox will be responsible for scheduling their subcontractors work. If the job superintendent is not present, subcontractors will not be allowed to work.
- D. Landowner should contact Contractor, HKM, or Department of State Lands; it is his choice. (By Dan Koszuta)

### IV. Project Requirements

- A. Submittals - The special provisions identify a number of submittals which need to be received during the course of this project. Not received but needed shortly:
  - 1. Construction Schedule - will be revised and turned into HKM.
  - 2. Approval of Subcontractors - probably won't be any



subs.

3. Schedule of Payments

4. List of Employees

5. Moisture Density Curves

6. Dust Abatement Plan - Contractor will submit this - very important.

B. Section 9.6 of the Supplementary Conditions summarizes the procedure for submissions of submittals. Note that all submittals need to contain the Contractor's approval. Submittals that are not stamped with the Contractor's approval will be returned.

C. Construction Plan - The contract time for this project is 45 calendar days. The Notice to Proceed will be issued effective August 26, 1991.

Maddox's specific construction schedule is as follows:

1. Grading, drainage, excavation
2. Lime and topsoil
3. Riprap
4. Erosion mat
5. Subsidence backfill will take place approximately September 30 - October 9, 1991 but is subject to change. Bill Palmer will be notified 2-3 days prior to this phase.

C. The normal work week is Monday through Friday, 8:00 AM to 5:00 PM (SC-5). Work outside of the normal working hours or any Saturdays, Sundays or holidays must be requested in writing and approved by the Department of State Lands.



1. Does Maddox plan on working outside of the normal working hours? Not unless weather becomes a factor causing delays earlier in the week.

#### V. Application for Payments

A. General - Anticipate 3 progress payments will be made. One midway through the project, another after substantial completion and a final payment after the final inspection and project acceptance by Department of State Lands.

#### B. Measurement - Payment

1. Mobilization. 50% when 5% of original contract amount is earned. 100% when 10% of the original contract amount is earned.
2. Excavation. Based on average end area between the original ground and finished. Cross sections to be furnished by the Maddox and verified by HKM. Cross section will be done prior to construction beginning and supervised by HKM and again before topsoil placement.
3. Imported Topsoil. Based on average end area. Cross sections by the Contractor.
4. Fertilizer, Seed and Mulch. Based on ground surveys of those approved areas of disturbance. Survey completed by the Contractor and approved by the Engineer.
5. Lime. Measured by the ton of 100% available lime. All lime delivered to the site shall have certified lab analysis of lime purity.





6. Riprap, Bedding Material and Channel Protection.  
Field measured surface areas x thicknesses shown on the plans.

7. Erosion Control Mat. Field measured surface area.  
Does not include material for overlap or "trenching in".

C. Material On Site will be paid for if:

1. Must be stored on site or at an approved location.
2. Must be accompanied by a bill of sale and paid invoice.
3. Refer to General Condition 14.2.

## VI. Specific Department of State Lands Requirements

A. Payrolls shall be submitted weekly for Maddox's employees and those employees of subcontractors working on the project. Employee job classifications should correspond to the classification contained wage rates included with the specification.

First pay estimate will be due September 30, 1991.

B. Refer to Section SC-2 of the specifications. Safety during construction shall be the responsibility of the Contractor.

1. The Contractor shall develop and maintain a safety program and appoint an employee who is qualified and authorized to supervise and enforce the program.



2. It is not HKM's responsibility to be the Contractor's safety officer during construction.
3. Should an accident occur both HKM and Department of State Lands should be contacted immediately.

#### VII. Work Sequence - In General

1. Shaft closure gate
2. Construct drainage ditches and riprap channels
3. Backfill headcut
4. Remove coal slack from streambank
5. Lime application
6. Topsoil
7. Erosion control material
8. Seeding, fertilizing and mulching

VIII. Construction Staking - HKM has set primary control which is identified on the plans. Maddox will provide all construction staking necessary to construct project. Required as a minimum:

- A. Cross section project area and plot - basis of earthwork.
- B. Cross section borrow areas.
- C. Measure seeding areas by a ground survey.



IX. Testing During Construction - In General

Maddox will be responsible for providing documentation and the material testing necessary to assure that aggregates, topsoil, lime, etc. meet the project specification requirements.

A. Maddox Responsibilities (See SP 3.18)

1. Proctors on earthwork
2. Aggregate quality test on riprap bedding materials (wear and soundness)
3. Gradations on bedding material and stone centers
4. Laboratory analysis for lime and topsoil
5. Fertilizer, seed and mulch certificates of compliance

B. HKM's Responsibilities

1. Compaction testing during construction
2. Any of the above as deemed necessary

X. Inventory of the Project Site

Before construction is started the site shall be inventoried to document the conditions of fences, structures, roads, culverts, etc. Photographs and written descriptions shall be used to document the existing conditions of these items.

XI. Progress Meetings

Because of the relatively short duration of this project it is anticipated that only 1 or 2 progress meetings will be held during construction. The purpose of the meetings



will be to review progress, maintain coordinations,  
update and modify scheduling requirements and resolve  
problems.

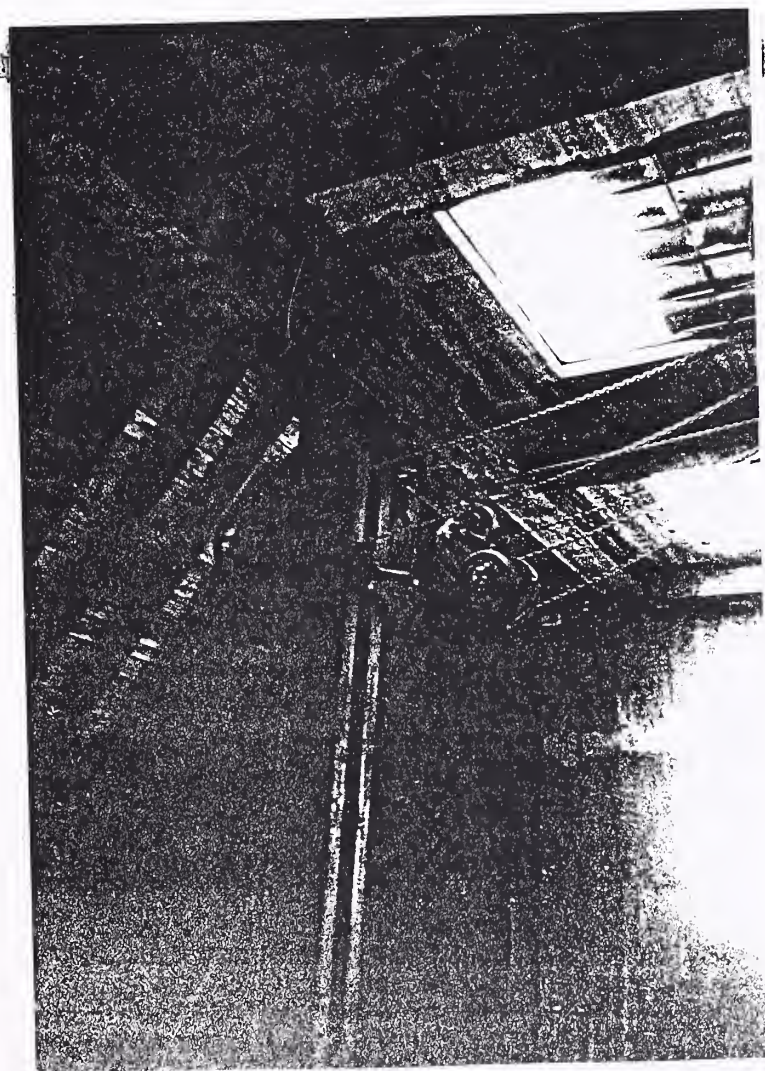
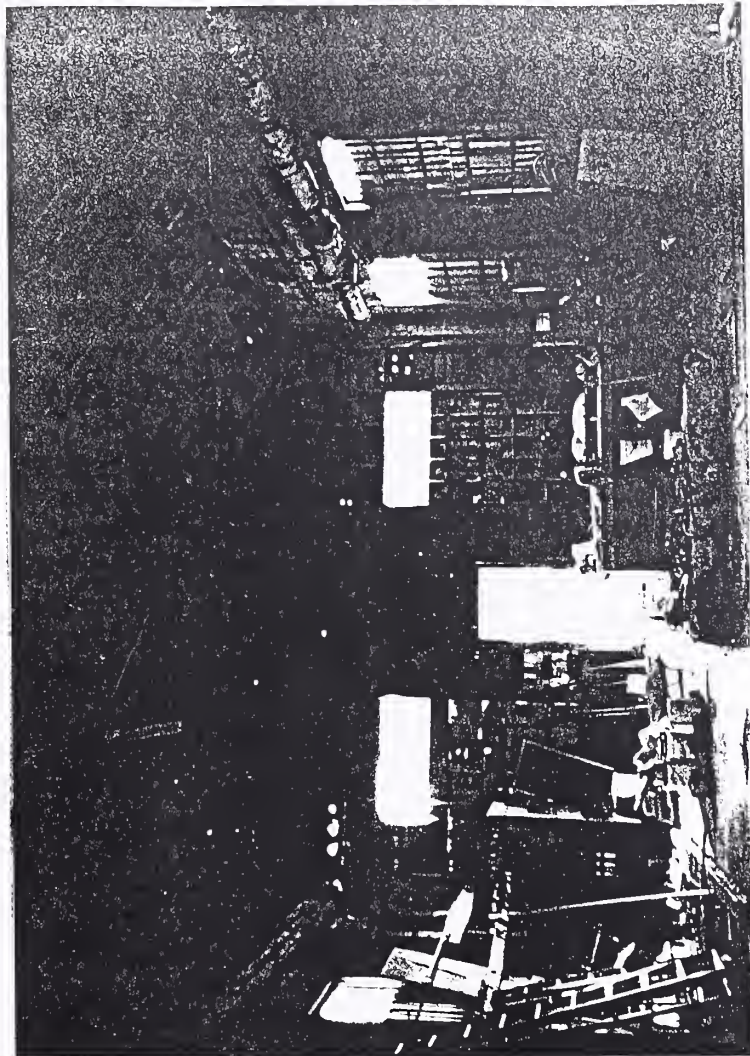
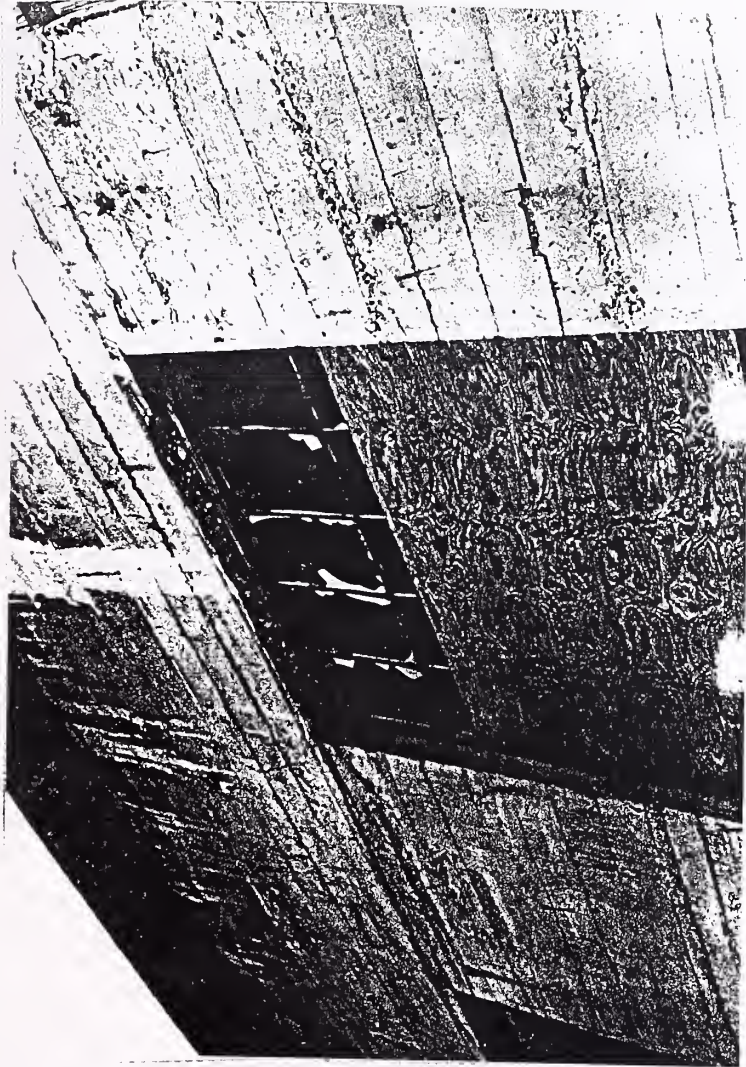




## **ATTACHMENT 10**



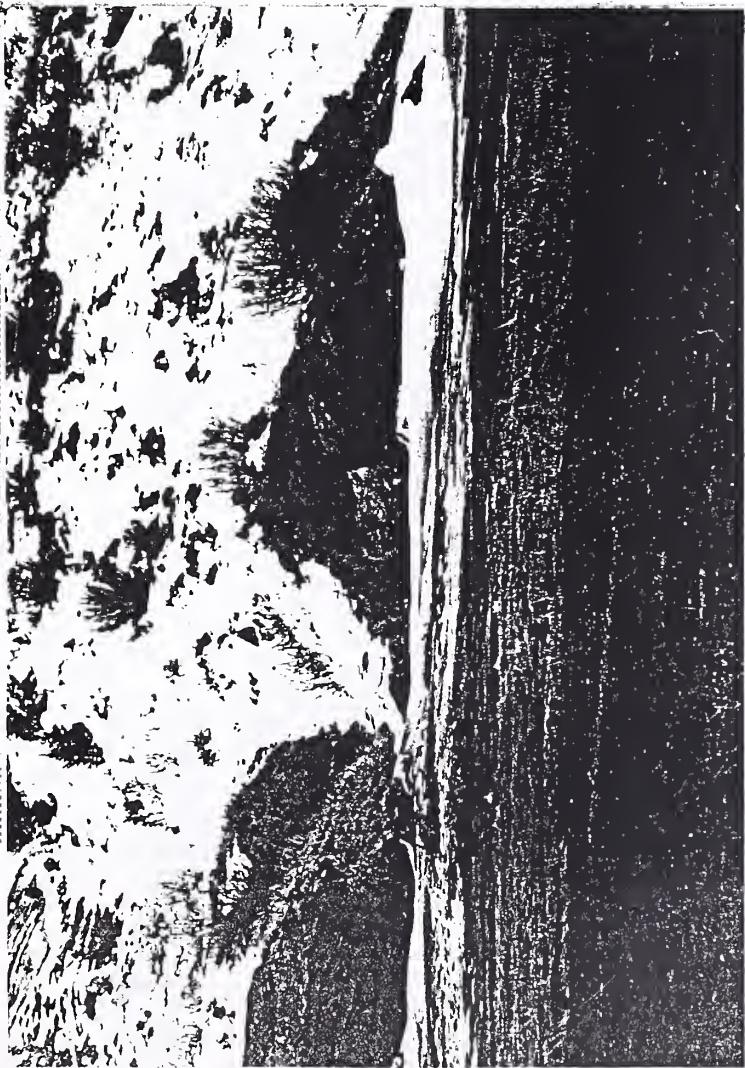
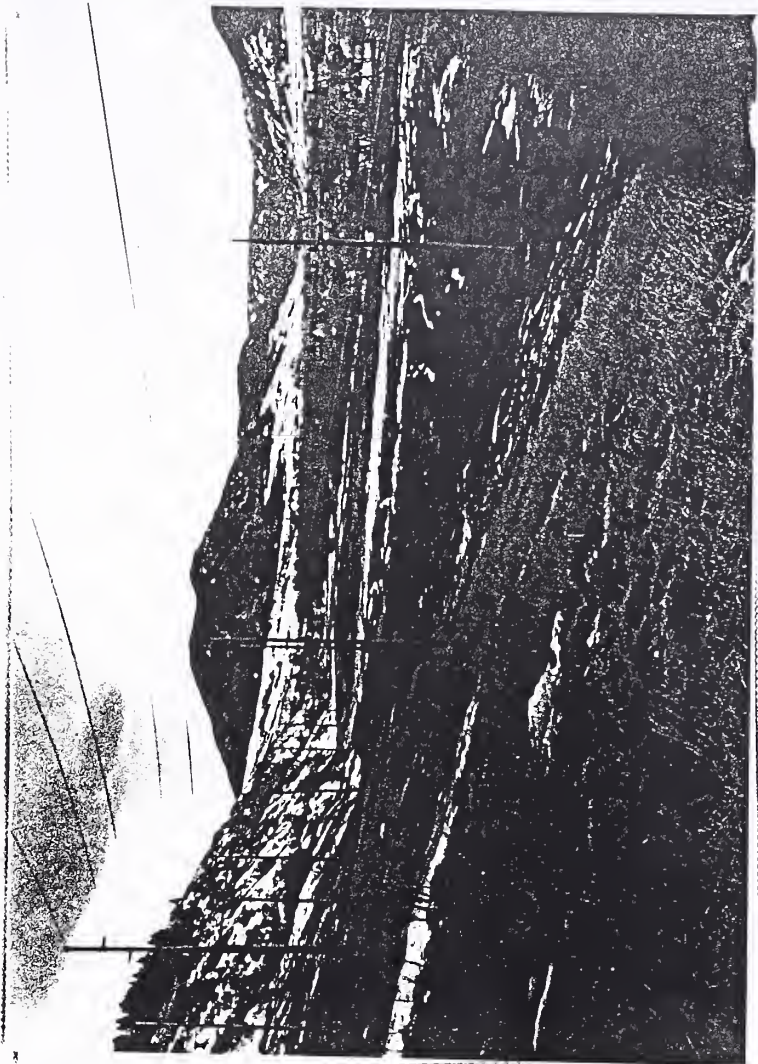








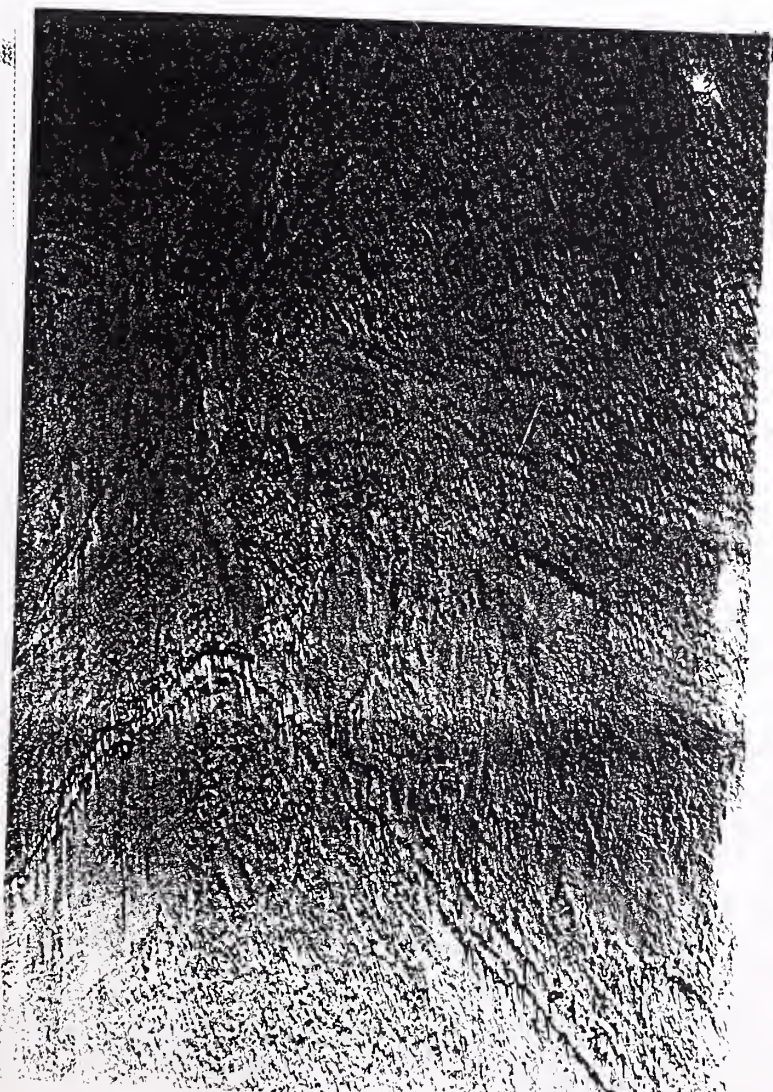
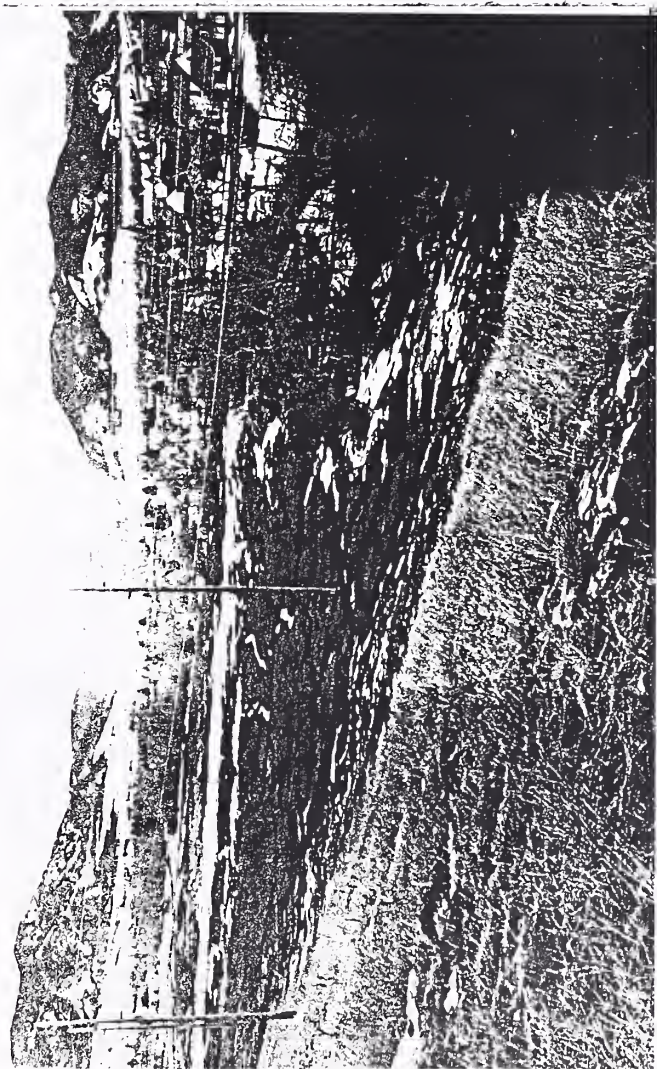








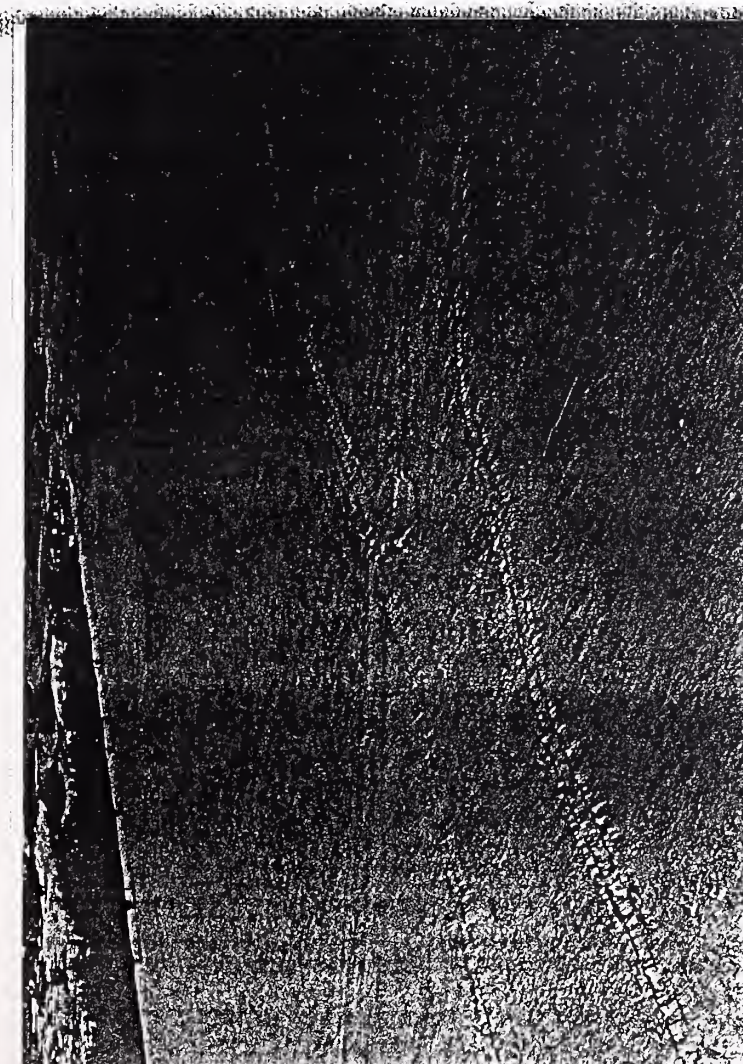
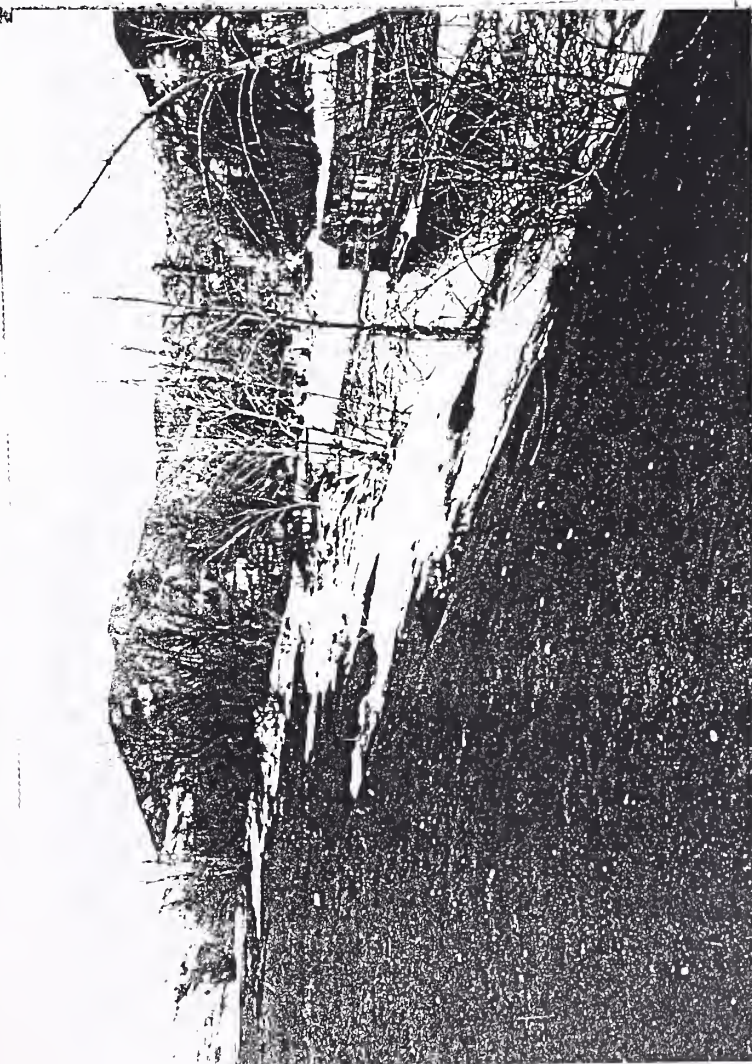
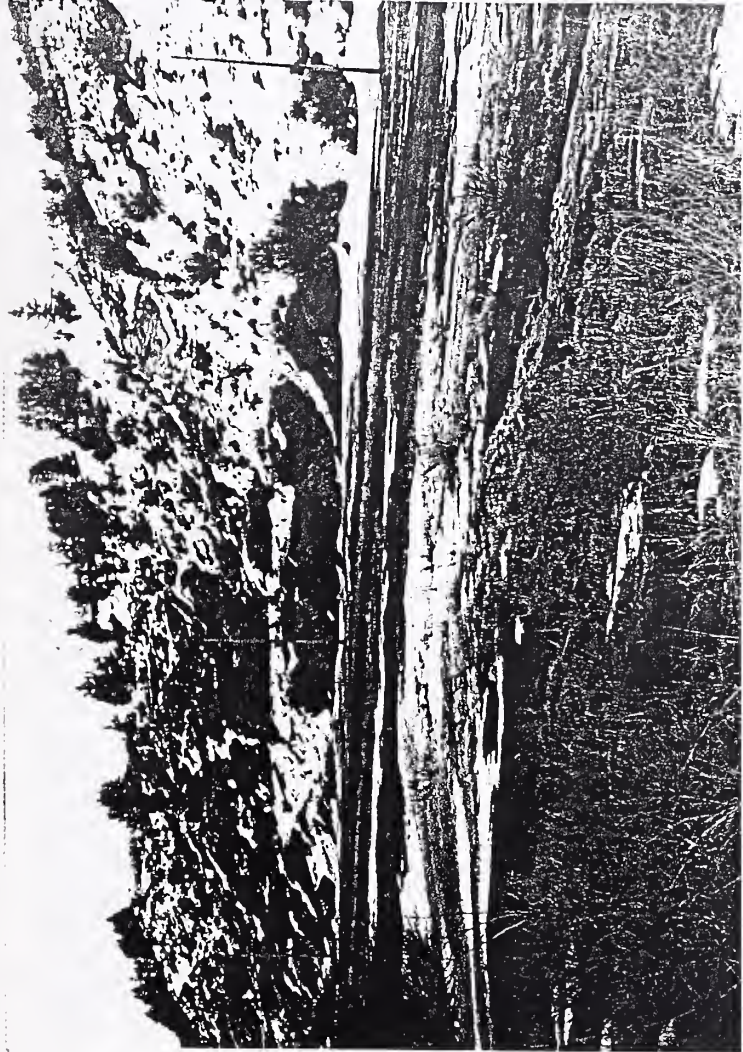








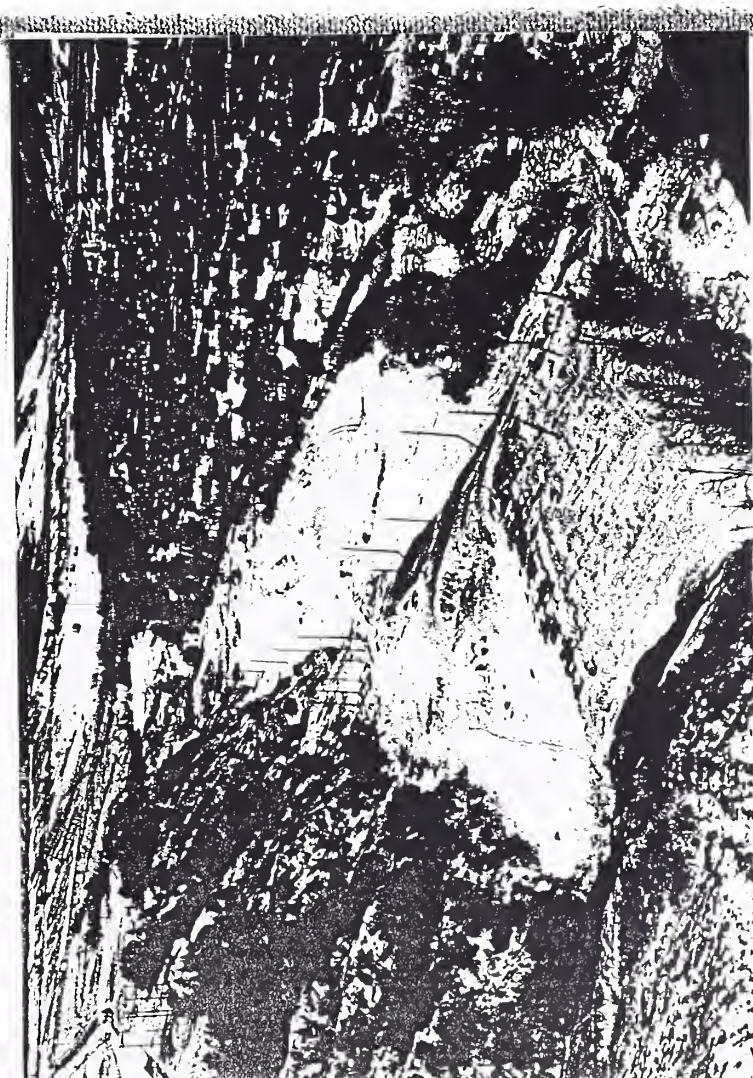
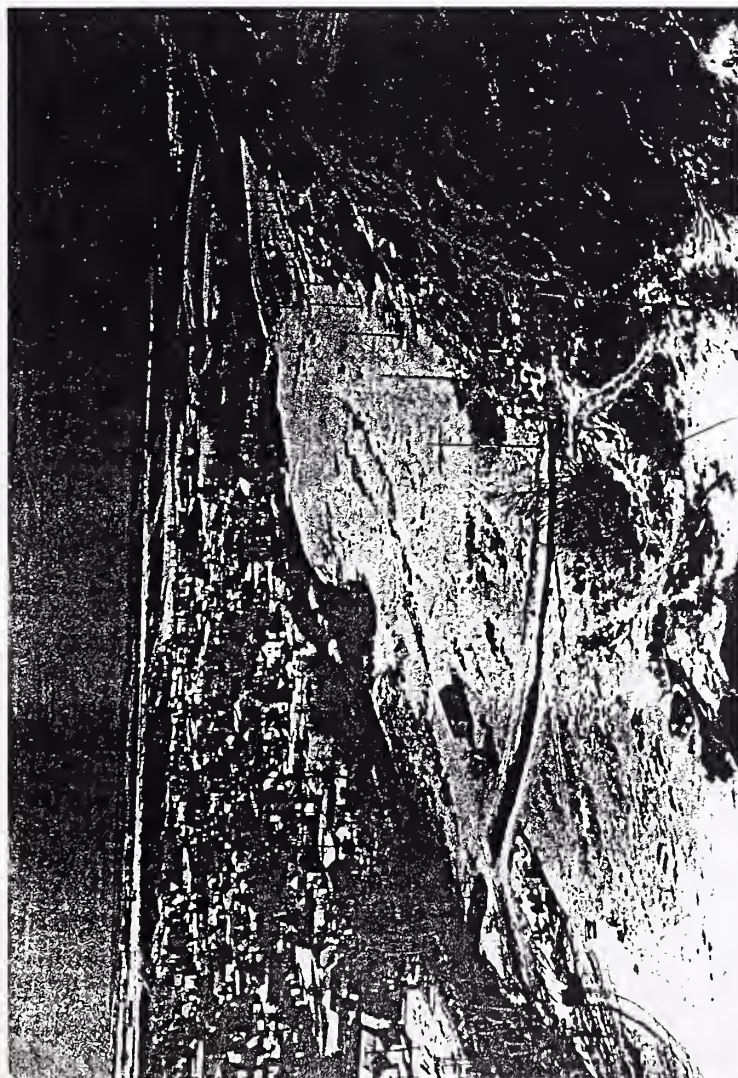
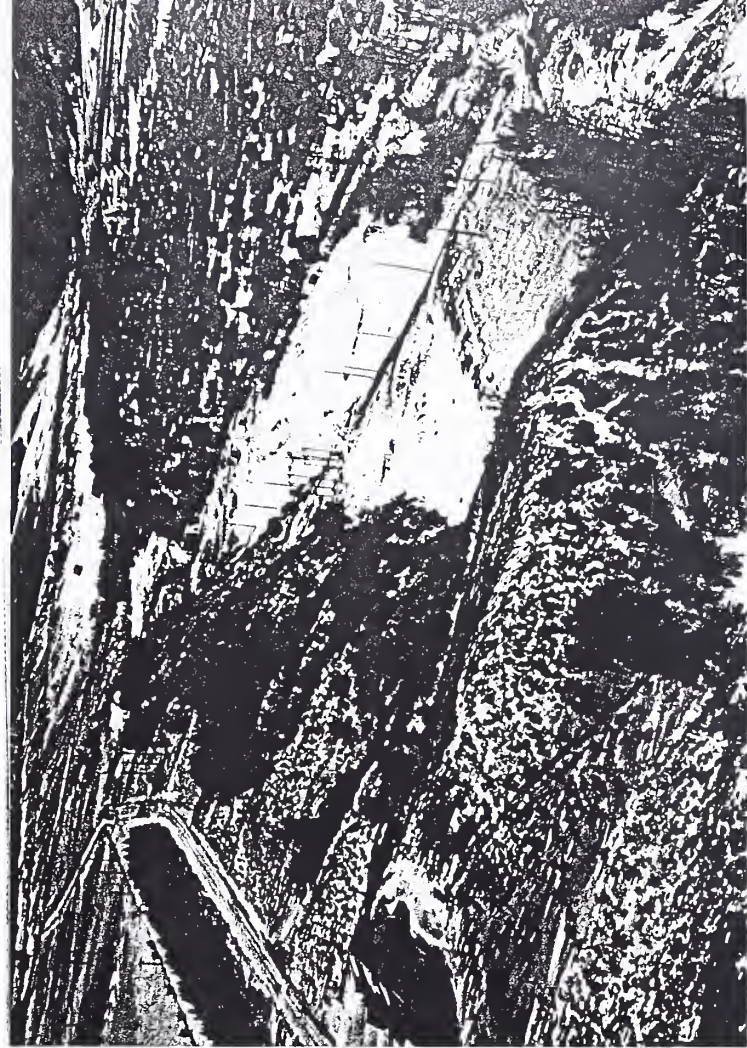








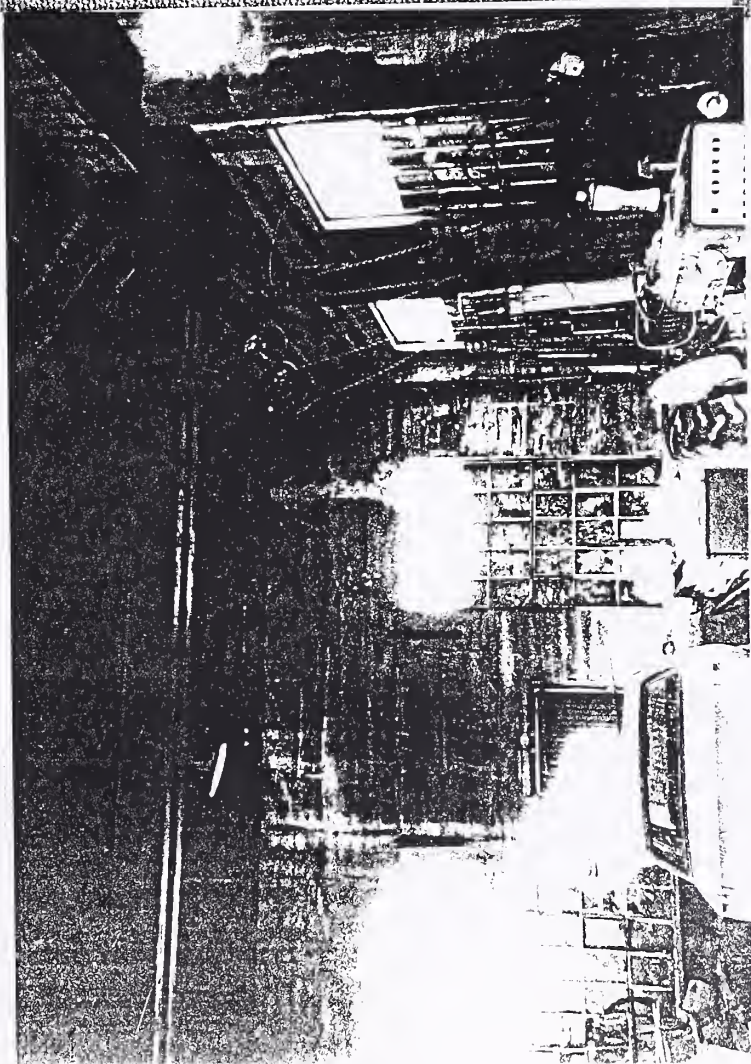
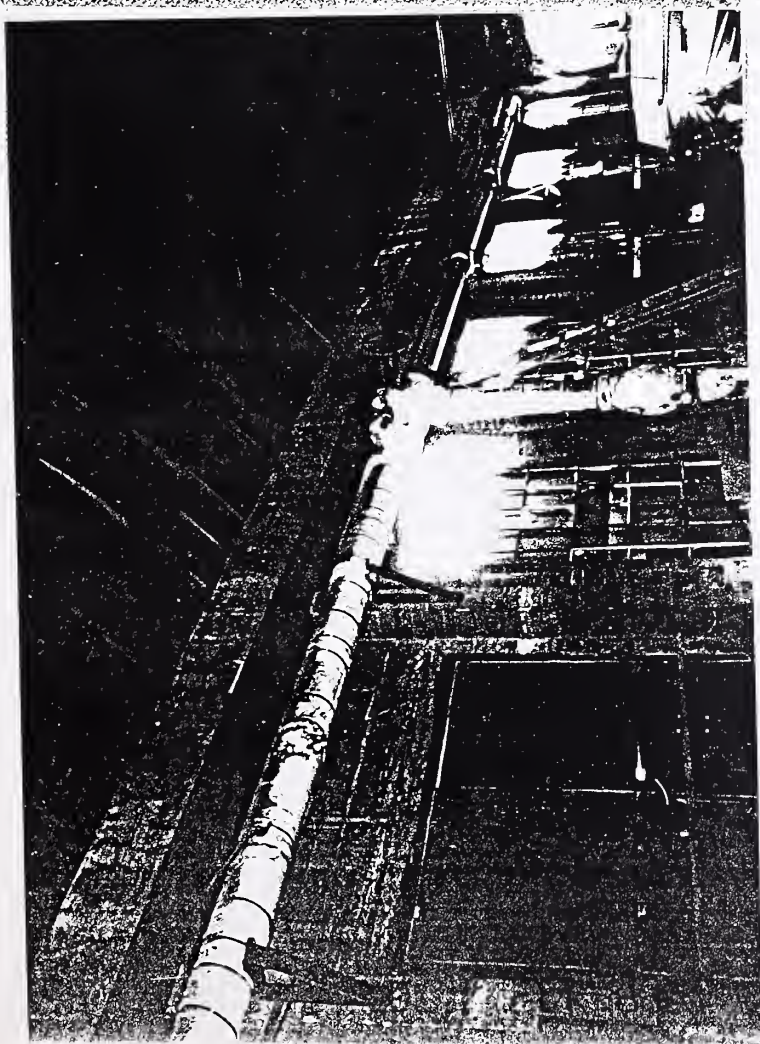
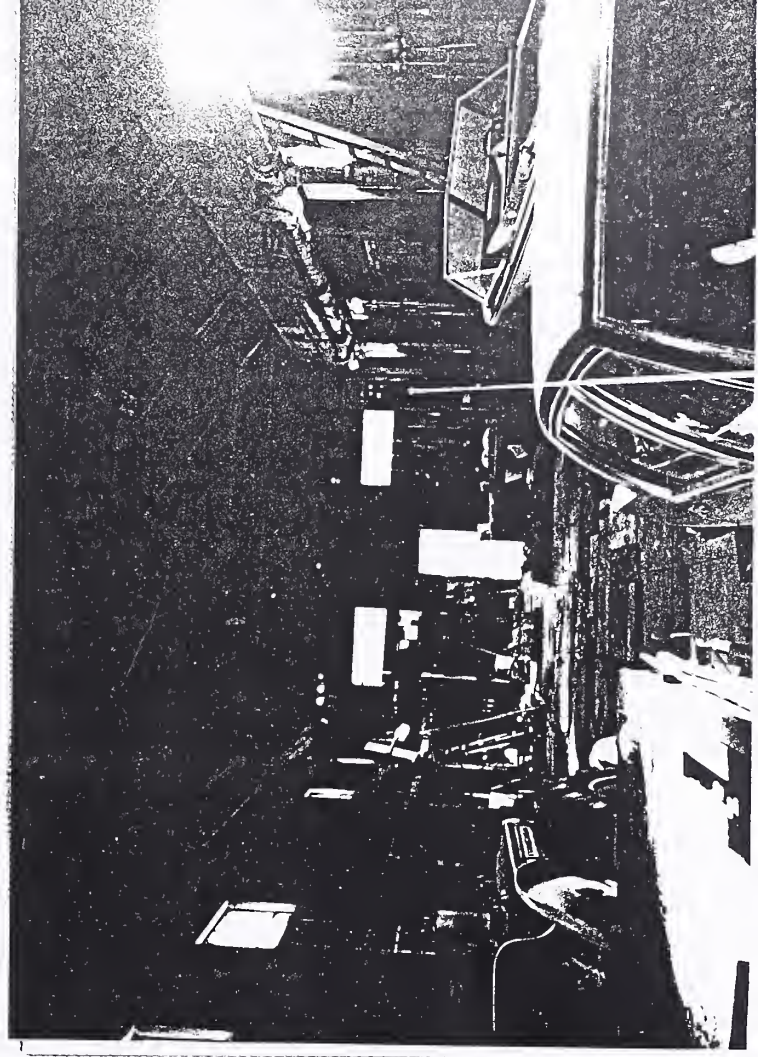








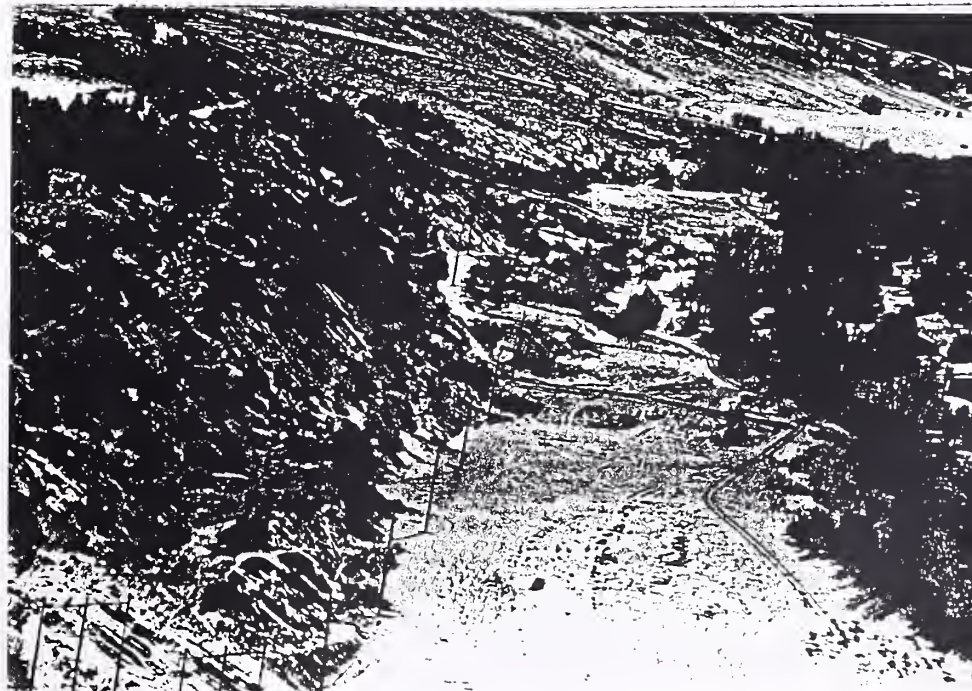
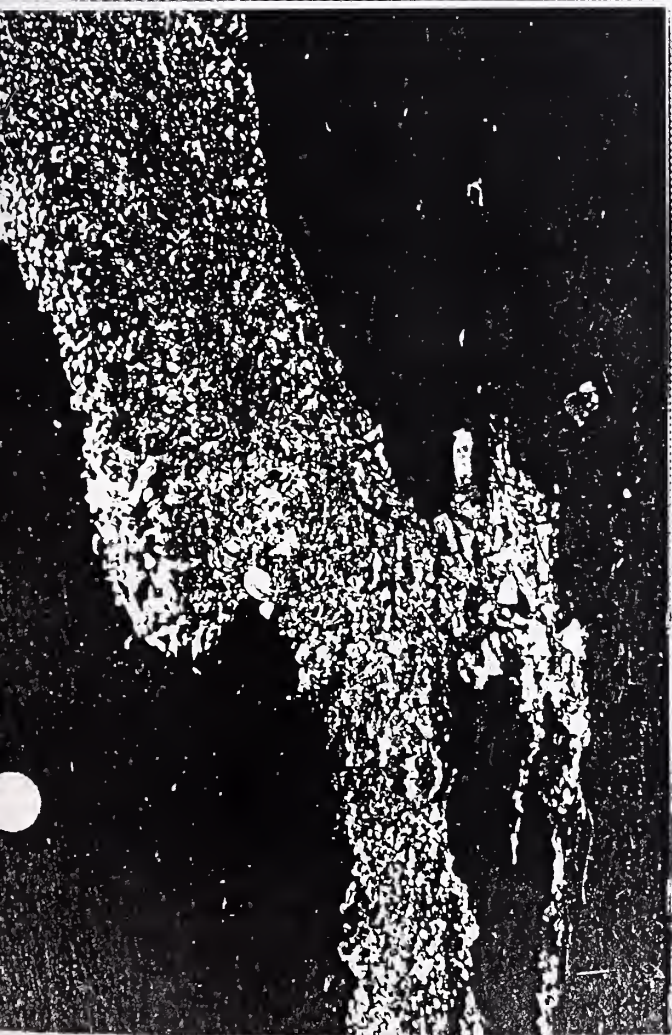
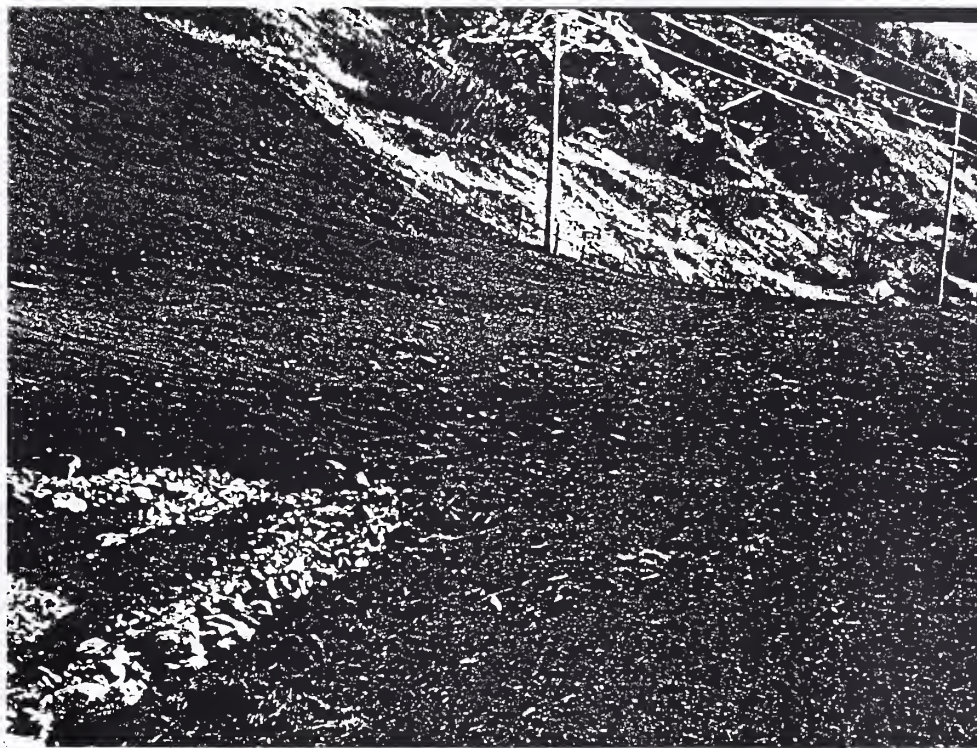
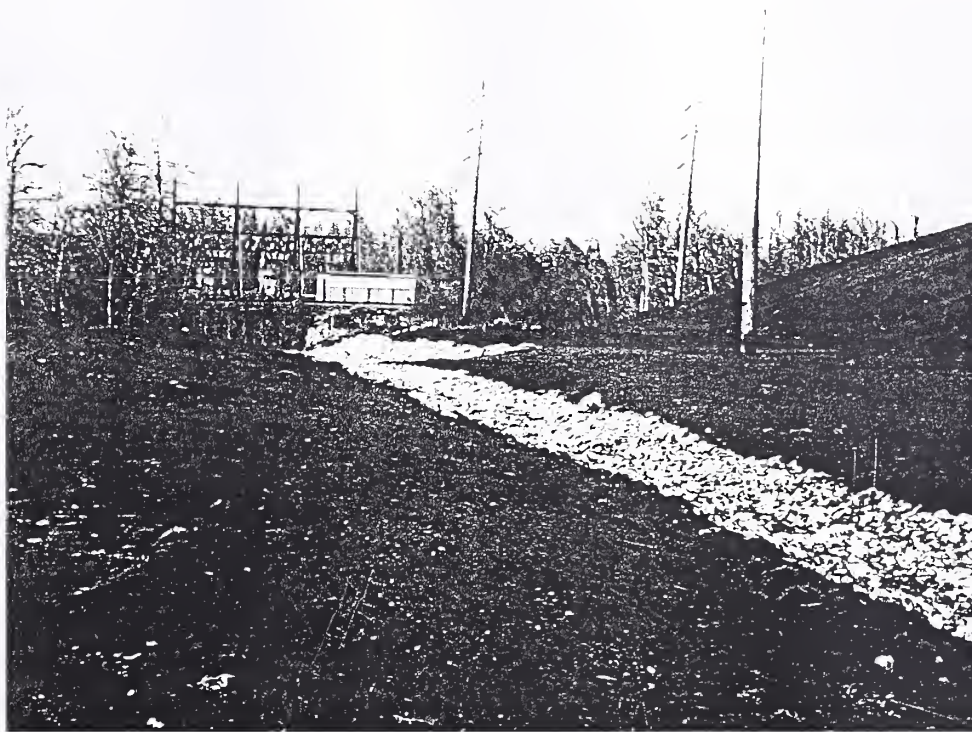








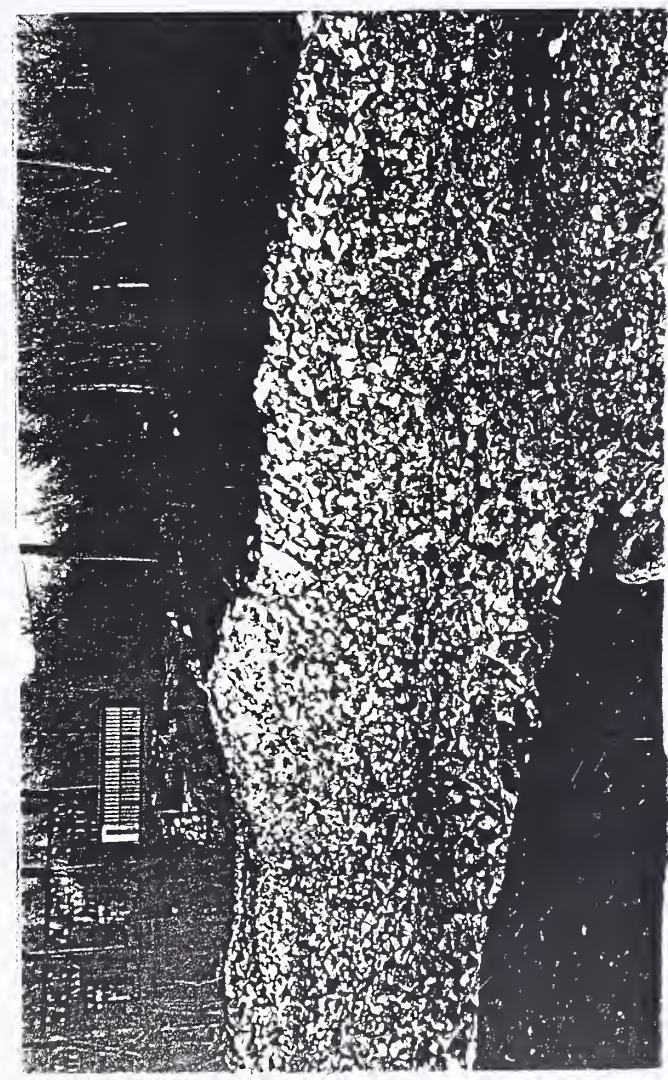
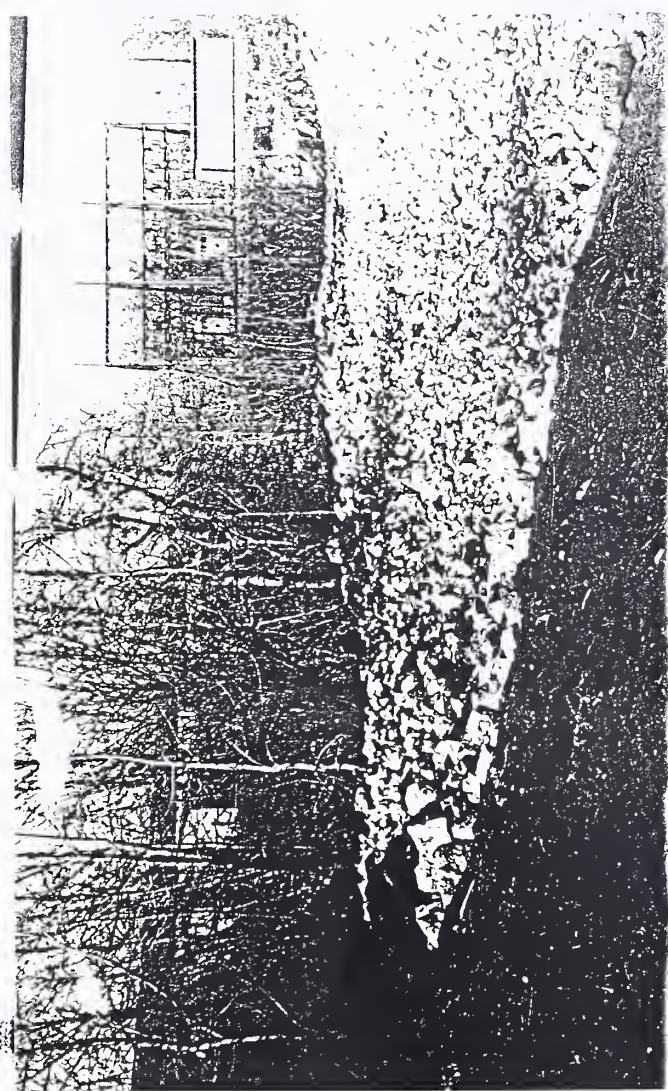
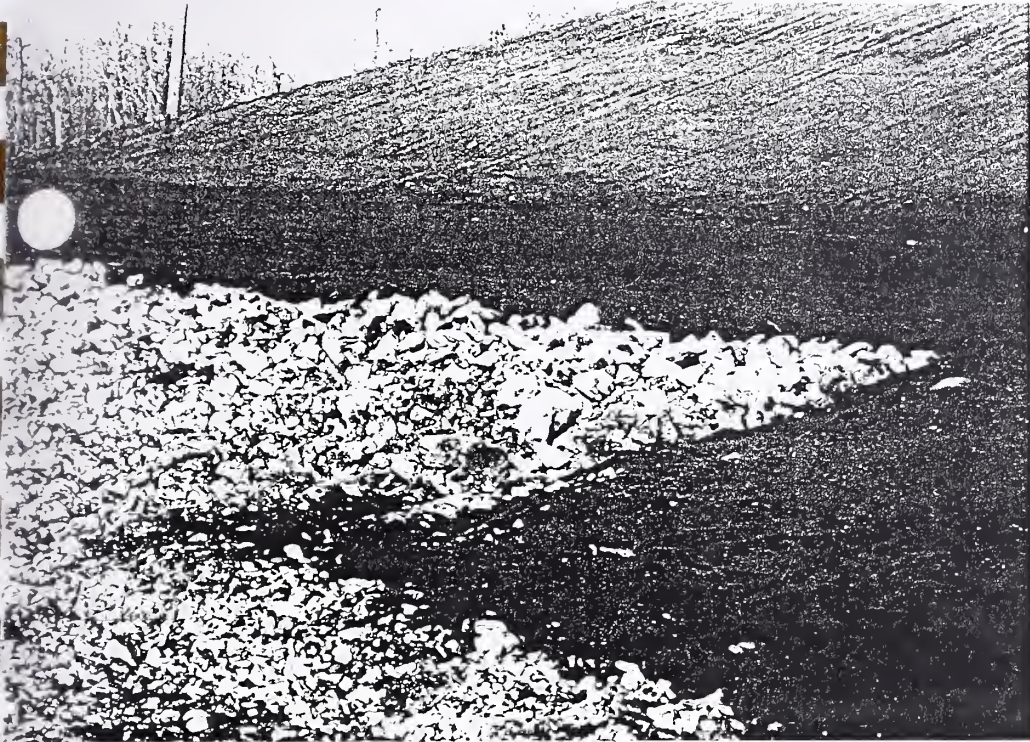








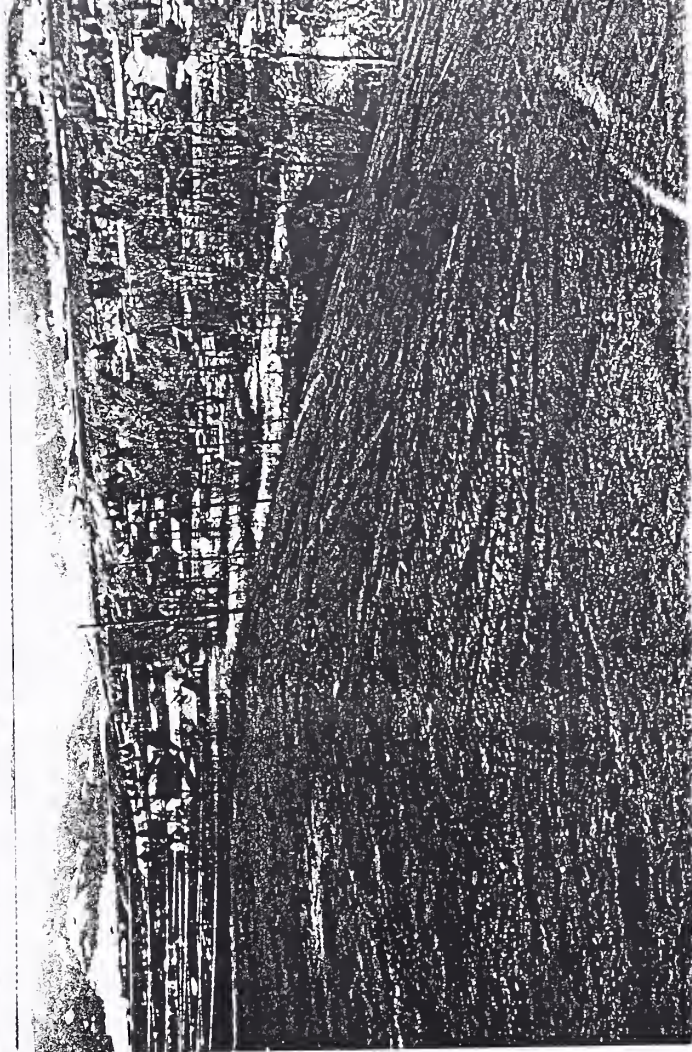
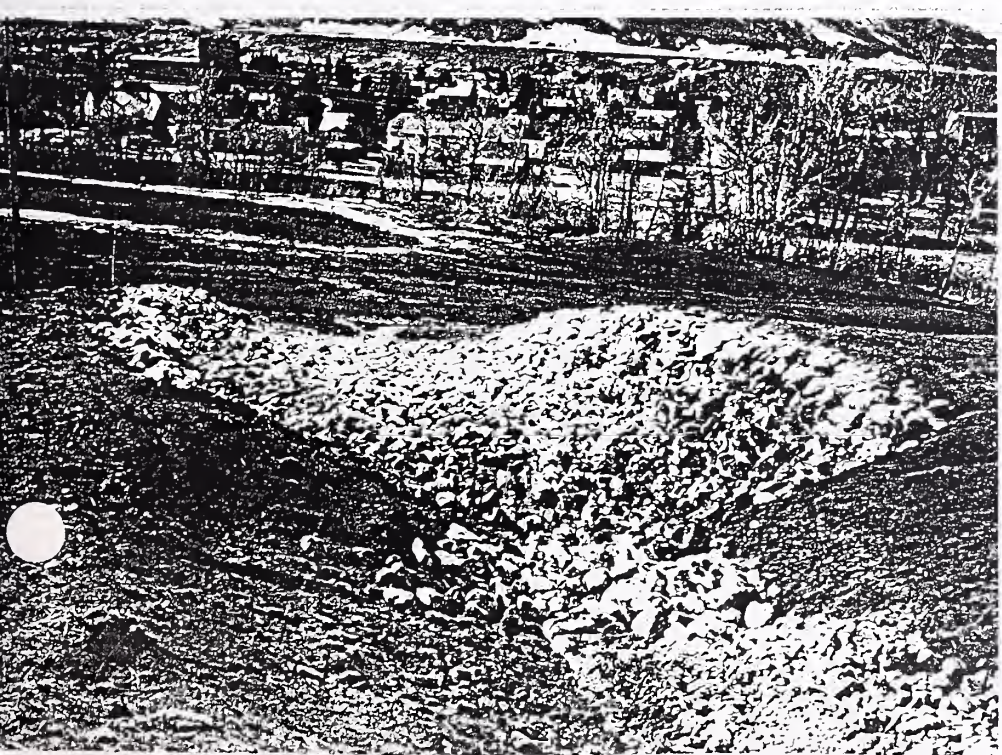
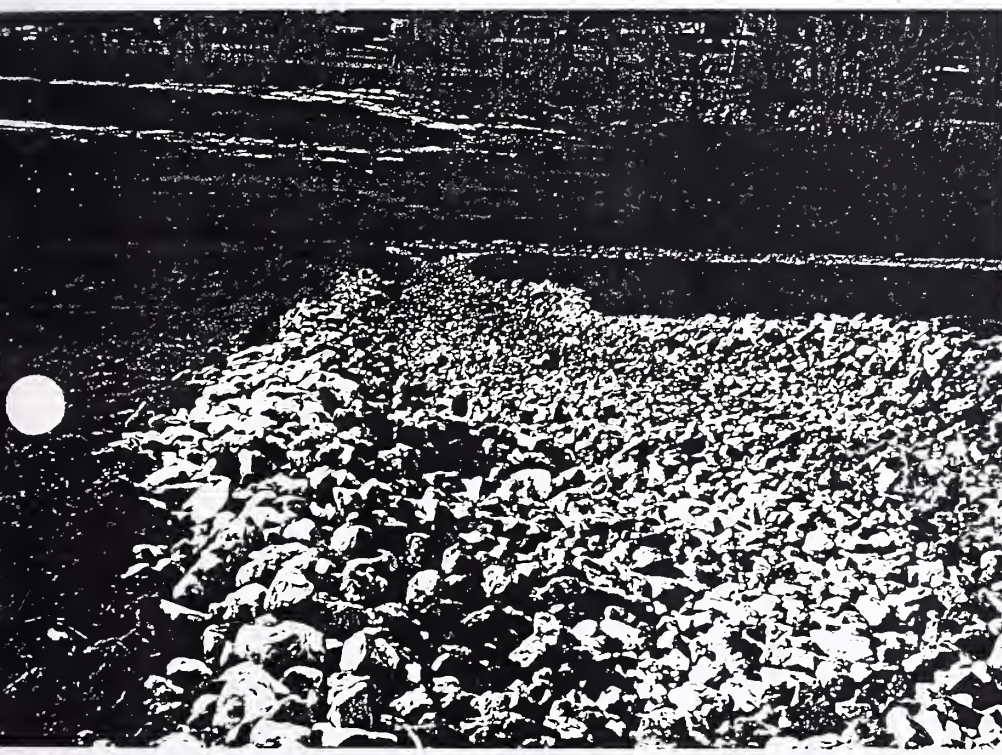
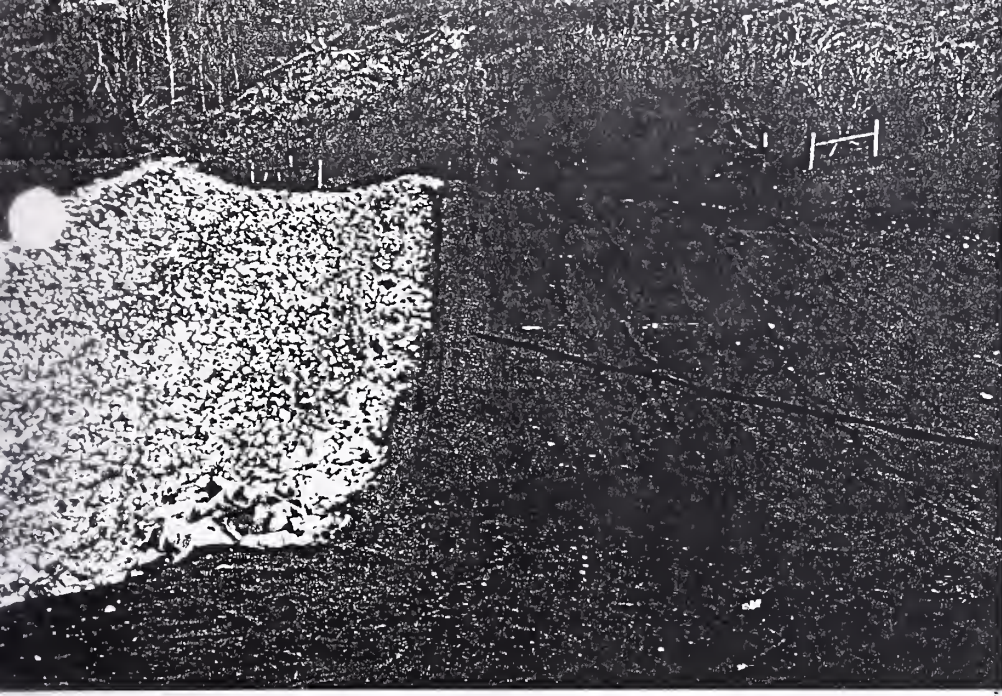








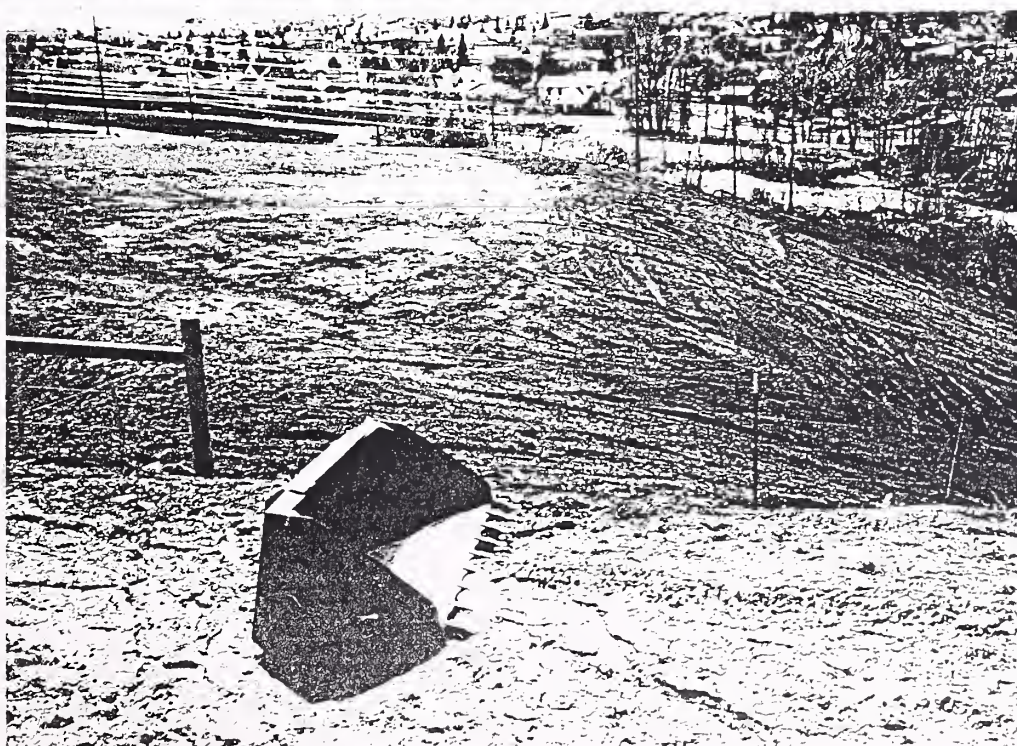
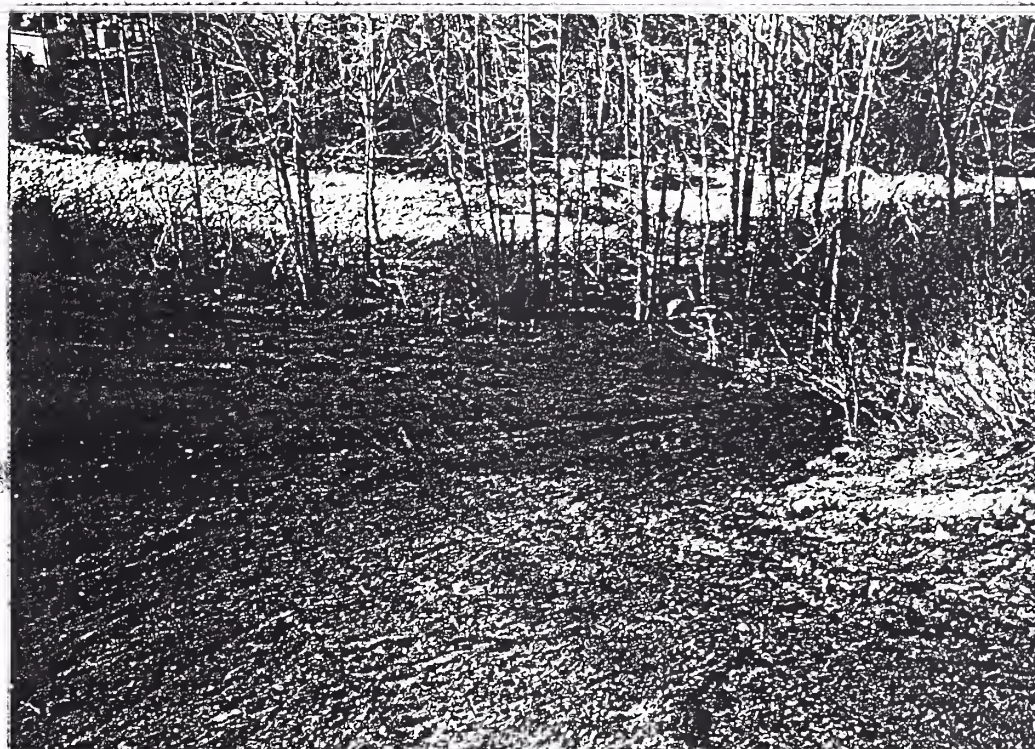
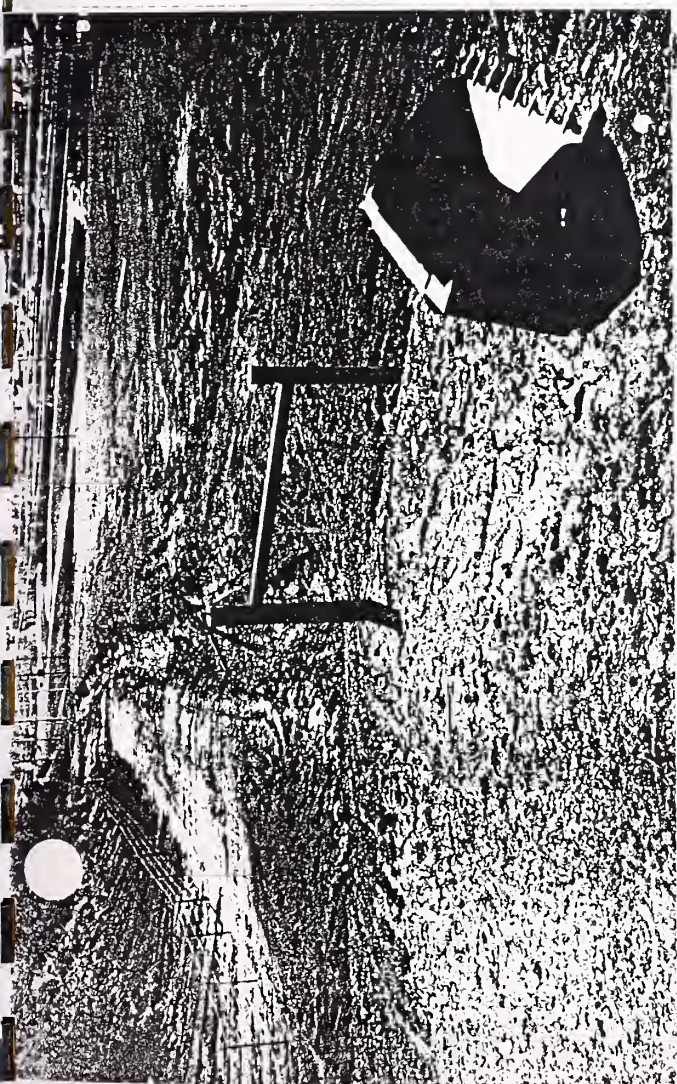
















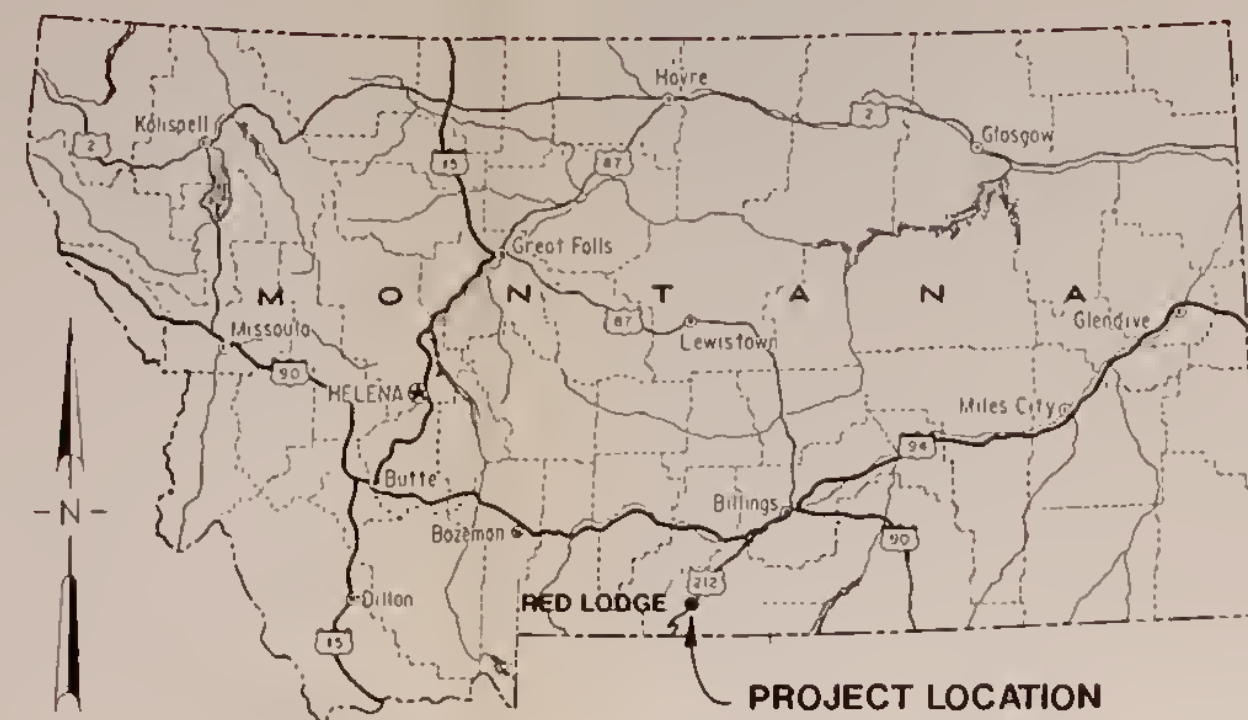
## **ATTACHMENT 11**





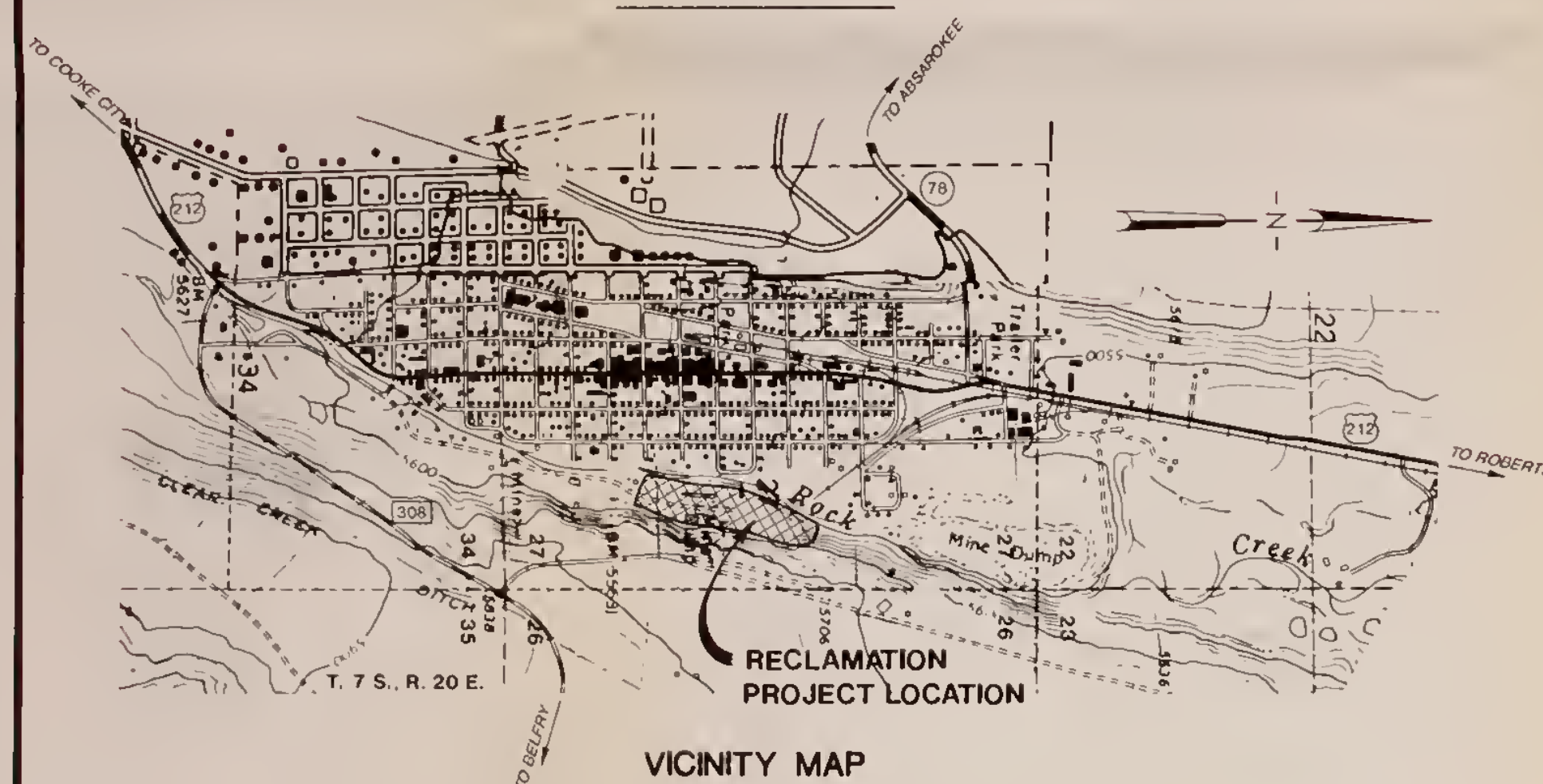


# SOUTH RED LODGE DUMP MAINTENANCE PROJECT



LOCATION MAP

Project No. : DSL-AMRB No. 91-M03  
HKM No. 8M186.108



VICINITY MAP



## INDEX OF SHEETS

1. COVER SHEET
2. GENERAL NOTES, SURVEY CONTROL & OWNERSHIP
3. PLAN AND DITCH PROFILES
4. DETAILS AND TYPICAL SECTIONS

Prepared for :

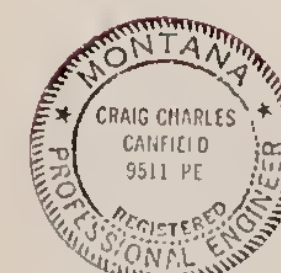
ABANDONED MINE RECLAMATION BUREAU  
MONTANA DEPARTMENT OF STATE LANDS  
1625 Eleventh Avenue  
Helena, Montana 59620

## RECORD DRAWINGS – AUGUST 1992

Prepared by :

**HKM ASSOCIATES**  
**ENGINEERS-PLANNERS**

Airport Industrial Park      Branch Offices:  
P.O. Box 31318      • Sheridan, Wyoming  
Billings, Montana 59107      • Bazeman & Miles City, Montana



*Craig C. Canfield*  
Craig C. Canfield, P.E.  
Project Manager

CONTRACTOR: Maddox Roofing and Construction  
Great Falls, MT

NOTICE TO PROCEED: August 26, 1991

SUBSTANTIAL COMPLETION: July 10, 1992

FINAL CONTRACT AMOUNT:

Sheet No.

1

of 4



## GENERAL NOTES

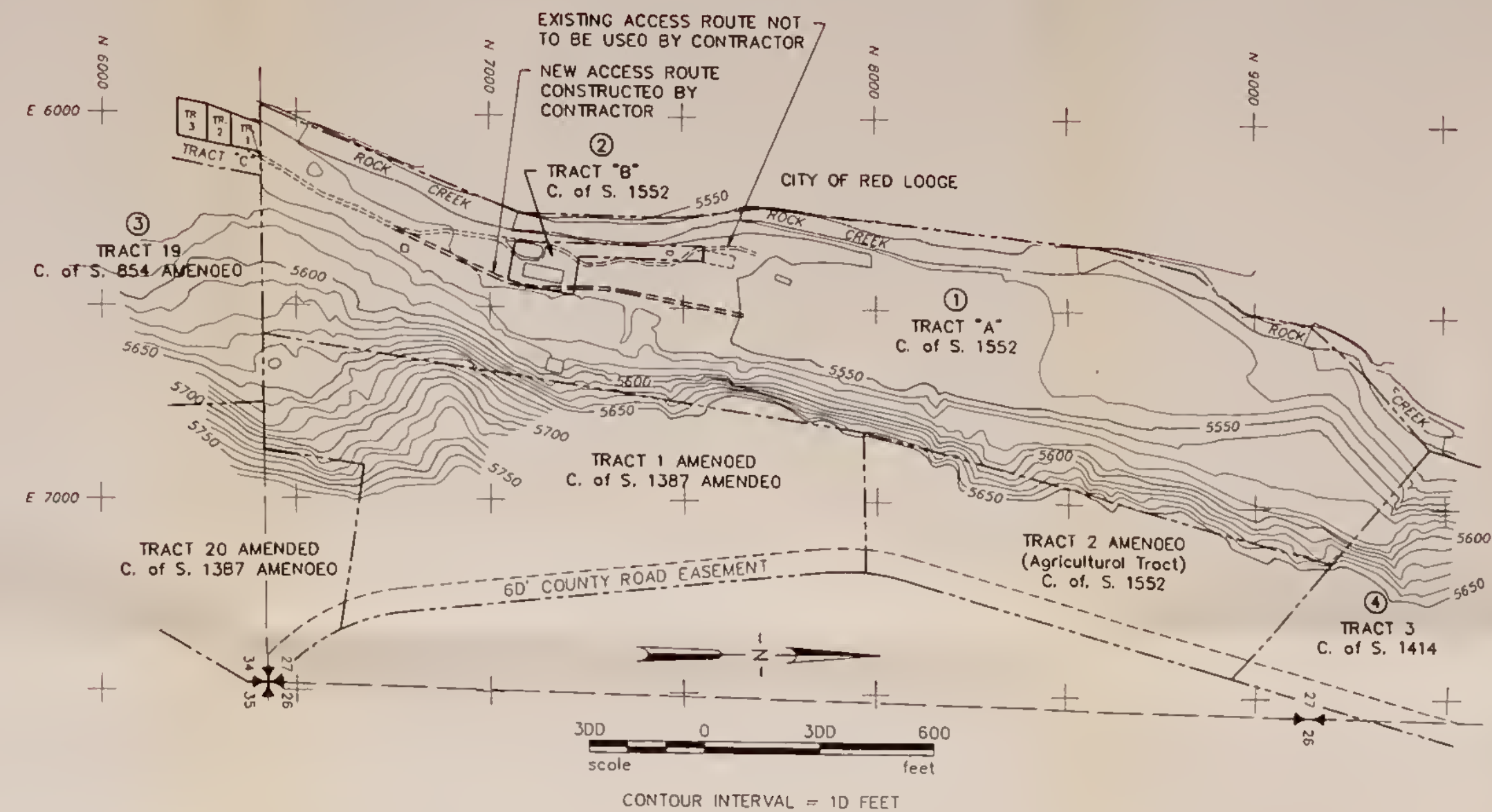
- UTILITY INFORMATION SHOWN ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR LOCATIONS OF LINES AND SERVICES BEFORE COMMENCING WORK.
- ALL FENCES ARE TO BE MAINTAINED DURING THE COURSE OF THE CONTRACT. ANY FENCE REMOVED OR DESTROYED DURING THE COURSE OF THE PROJECT SHALL BE REINSTALLED OR RECONSTRUCTED IN LIKE KIND AT NO COST TO THE OWNER OR LANDOWNER. THE CONTRACTOR SHALL NOTIFY THE LANDOWNERS OF THE NEED TO TEMPORARILY REMOVE OR RELOCATE FENCES.
- THE CONTRACTOR SHALL MAINTAIN HIS OPERATIONS WITHIN APPROVED AREAS OF DISTURBANCE. OTHER AREAS THAT ARE DISTURBED BY THE CONTRACTOR SHALL BE RECLAIMED AND REVEGETATED AT NO COST TO THE OWNER.
- LOCATION OF ACCESS ROUTES SHALL BE APPROVED BY THE ENGINEER. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL RECLAIM AND REVEGETATE ALL ACCESS ROUTES IN ACCORDANCE WITH SECTION 19 OF THE SUPPLEMENTARY CONDITIONS.

## SUBSIDENCE BACKFILL

THREE SUBSIDENCE HOLES NOT SHOWN ON THE PLANS SHALL BE BACKFILLED. THE HOLES ARE LOCATED ON THE BENCH EAST OF THE PROJECT SITE AND EAST OF THE COUNTY ROAD IN THE SW-1/4 OF SECTION 27, T. 7 S., R. 20 E. AT THE FOLLOWING COORDINATES:

SUBSIDENCE HOLE	NORTHING	EASTING	ESTIMATED BACKFILL (C.Y.)	APPROXIMATE RADIUS (FT.)
1	8181	7860	100	17
2	8183	7762	400	16
3	8122	7653	70	14

SUBSIDENCE HOLES SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 430 OF THE SPECIFICATIONS. DISTURBED AREAS SHALL BE TOPSOILED, REVEGETATED AND ENCLOSED WITH TYPE F4M FARM FENCE.



PARCEL	OWNER	ADDRESS	RECORDING INFORMATION
①	RONALD A. WOLFE and KATHLEEN ANN WOLFE	ROUTE 2 BOX 3400 RED LODGE, MT 59068	Document No. 258451 Book 122, Page 797
②	RONALD A. WOLFE and KATHLEEN ANN WOLFE	ROUTE 2 BOX 3400 RED LODGE, MT 59068	
③	MARVIN R. OSTRUM, et. al.	c/o MACON SUPPLY, INC. 401 N. 23rd ST. BILLINGS, MT 59101	Document No. 23108 Book 86, Page 329
④	BEAR CREEK LAND and CATTLE CO.	P.O. BOX 29 RED LODGE, MT 59068	Document No. 241731 Book 114, Page 252

## OWNERSHIP AND ACCESS

SURVEY CONTROL DATA				
DESIG.	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	6889.19	6623.07	5564.17	NAIL
CP2	6443.18	6648.58	5650.19	NAIL
CP3	7402.10	6521.05	5565.78	NAIL
CP4	8288.78	6568.08	5543.19	NAIL
CP5	9390.16	7032.59	5578.68	NAIL
CP6	9250.11	5658.44	5534.36	NAIL
CP7	6306.36	6128.33	5570.90	NAIL
CP8	6731.93	7070.55	5802.53	NAIL
15&PL	6760.61	5672.95	5568.45	60d NAIL AT INTERSECTION OF 15th St. & PLATTE Ave.
7&PL	9639.70	5673.82	5530.08	NAIL AT INTERSECTION OF 7th St. & PLATTE Ave.

HORIZONTAL AND VERTICAL DATUM WAS DERIVED FROM A PREVIOUS SURVEY AND MAPPING BY ASSOCIATED SURVEYS, INC. DECEMBER 1982. ADDITIONAL FIELD SURVEYS WERE CONDUCTED BY HKM ASSOCIATES IN SEPTEMBER 1990 AND MARCH 1991. HORIZONTAL AND VERTICAL DATUM FOR THESE FIELD SURVEYS WAS TIED TO THE ASSOCIATED SURVEYS, INC. MAPPING USING THE 15&PL AND 7&PL CONTROL POINTS. MAPPING FOR THIS PROJECT IS A COMBINATION OF POINTS FROM FIELD SURVEYS AND DIGITIZATION OF FEATURES FROM THE ASSOCIATED SURVEYS, INC., DECEMBER 1982 MAPS.

HORIZONTAL LOCAL PLANE GRID WITH NORTH ORIENTATION ASSUMED. VERTICAL DATUM IS ASSUMED FOR THE SITE.

## ESTIMATED QUANTITIES

Item No.	Description	Unit	Construction Estimated Quantity	Unit Price	Total Price
101	Mobilization	L.S.	1	\$ 24,000.00	\$ 24,000.00
102	Excavation	C.Y.	4,000	\$ 2.00	\$ 8,000.00
103	Provide Imported Cover Soil	C.Y.	18,976	\$ 5.31	\$ 100,762.56
104	Lime Application	Ton	293	\$ 47.00	\$ 13,754.55
105	Fertilize, Seed & Mulch	Acre	14	\$ 940.00	\$ 13,160.00
106	Riprap Type I	C.Y.	395	\$ 40.00	\$ 15,400.00
107	Riprap Type II	C.Y.	528	\$ 43.00	\$ 22,704.00
108	Bedding Material	C.Y.	187	\$ 20.00	\$ 3,740.00
109	4" Minus Channel Protection	C.Y.	87	\$ 20.00	\$ 1,740.00
110	Backfill Subsidence Holes	L.S.	1	\$ 1,400.00	\$ 1,400.00
111	Erosion Control Mat	S.Y.	900	\$ 1.30	\$ 1,710.00
112	Straw Bales for Erosion Control	Each	0	\$ -0-	\$ -0-
113	Form Fence Type F4M	L.F.	2,910	\$ 1.00	\$ 2,910.00
114	Double Panels	Each	16	\$ 166.00	\$ 2,656.00
115	Single Panels	Each	6	\$ 140.00	\$ 840.00
116	Gate (16')	Each	1	\$ 77.00	\$ 77.00
117	Filter Fabric	S.Y.	895	\$ 0.70	\$ 626.50
118	Shaft Closure	L.S.	1	\$ 2,400.00	\$ 2,400.00
C.O.1	Backfill Mine Subsidence East of Concrete Fanhouse.	L.S.	1	\$ 3,720.00	\$ 3,720.00
TOTAL:					\$ 219,060.61

**HKM ASSOCIATES**  
**ENGINEERS-PLANNERS**

Branch Offices:  
Airport Industrial Park  
P.O. Box 31318  
Billings, Montana 59107  
• Sheridan, Wyoming  
• Bozeman & Miles City, Montana

**SOUTH RED LODGE DUMP MAINTENANCE PROJECT**  
**CARBON COUNTY, MONTANA**

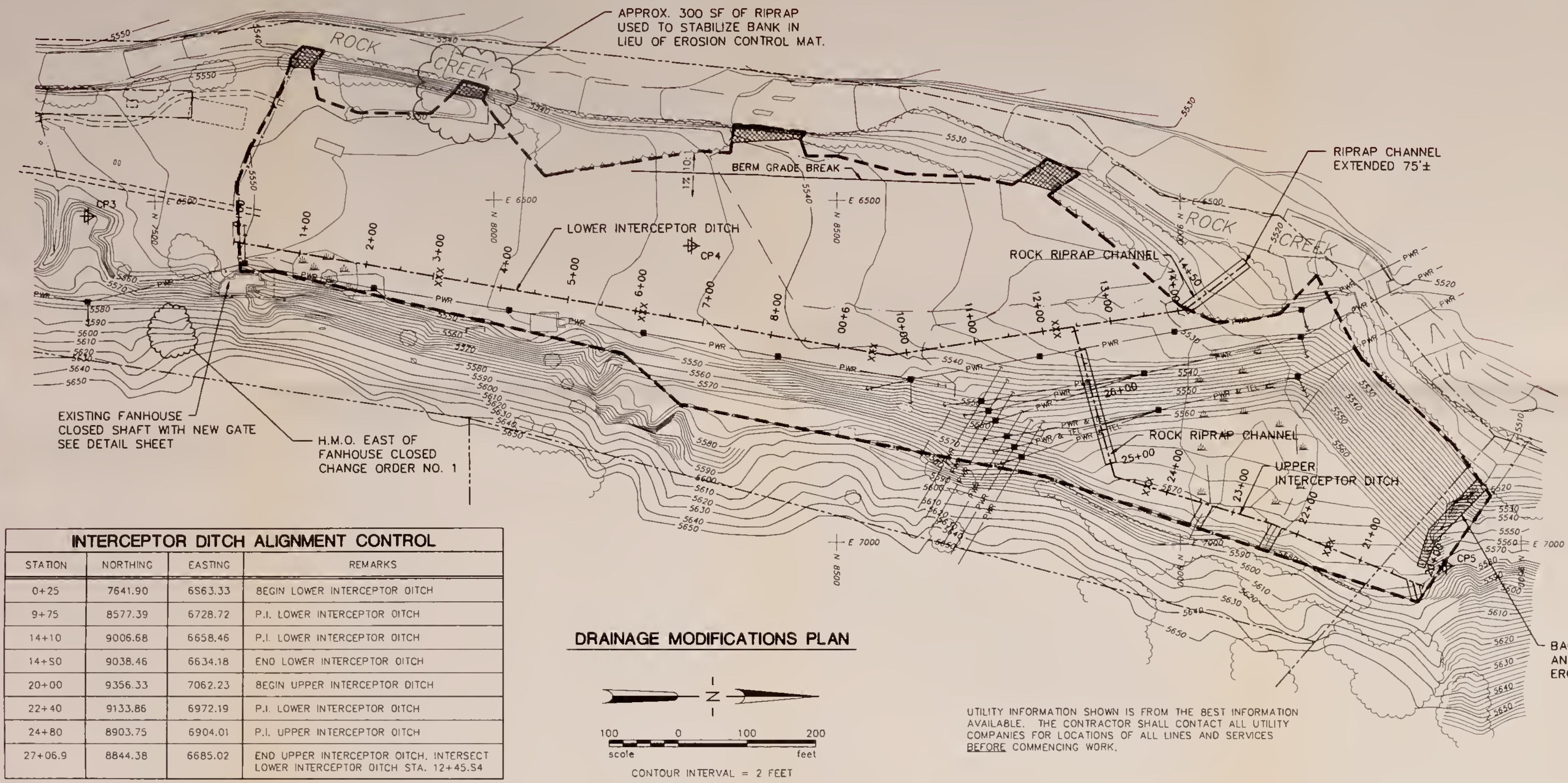
**GENERAL NOTES, SURVEY CONTROL & OWNERSHIP**

Project No. 8M186.108 • SHEET 2.DWG • Date APR 1991 • Designed CC • Drawn GE • Checked CC • Approved CC

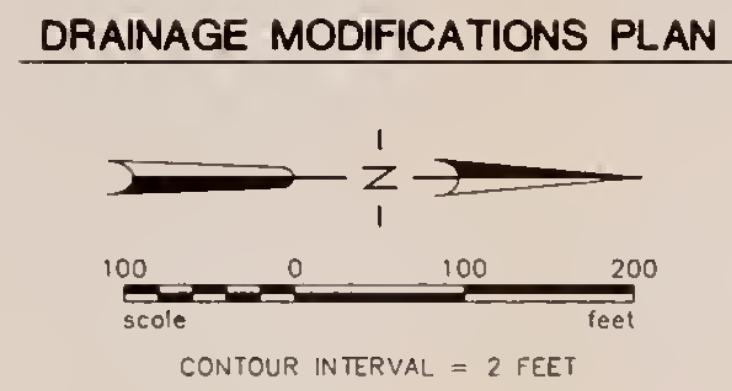
No.	Revision	By	Date
1	BACKFILL H.M.D.	RLG	8-92
2	RECORD DRAWINGS	RLG	8-92

Sheet No.  
**2**  
of 4



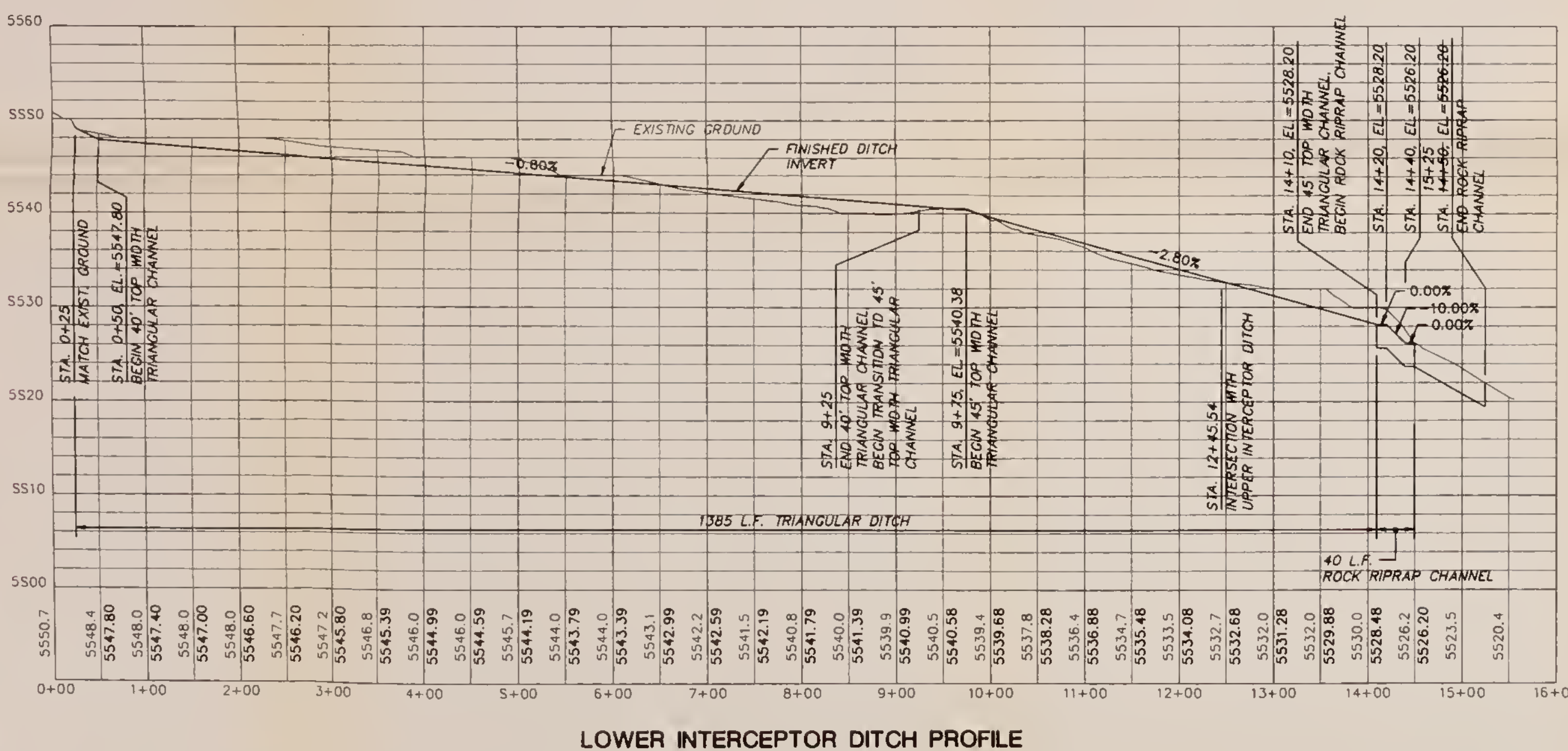


INTERCEPTOR DITCH ALIGNMENT CONTROL			
STATION	NORTHING	EASTING	REMARKS
0+25	7641.90	6563.33	BEGIN LOWER INTERCEPTOR DITCH
9+75	8577.39	6728.72	P.I. LOWER INTERCEPTOR DITCH
14+10	9006.68	6658.46	P.I. LOWER INTERCEPTOR DITCH
14+50	9038.46	6634.18	END LOWER INTERCEPTOR DITCH
20+00	9356.33	7062.23	BEGIN UPPER INTERCEPTOR DITCH
22+40	9133.86	6972.19	P.I. LOWER INTERCEPTOR DITCH
24+80	8903.75	6904.01	P.I. UPPER INTERCEPTOR DITCH
27+06.9	8844.38	6685.02	END UPPER INTERCEPTOR DITCH, INTERSECT LOWER INTERCEPTOR DITCH STA. 12+45.54

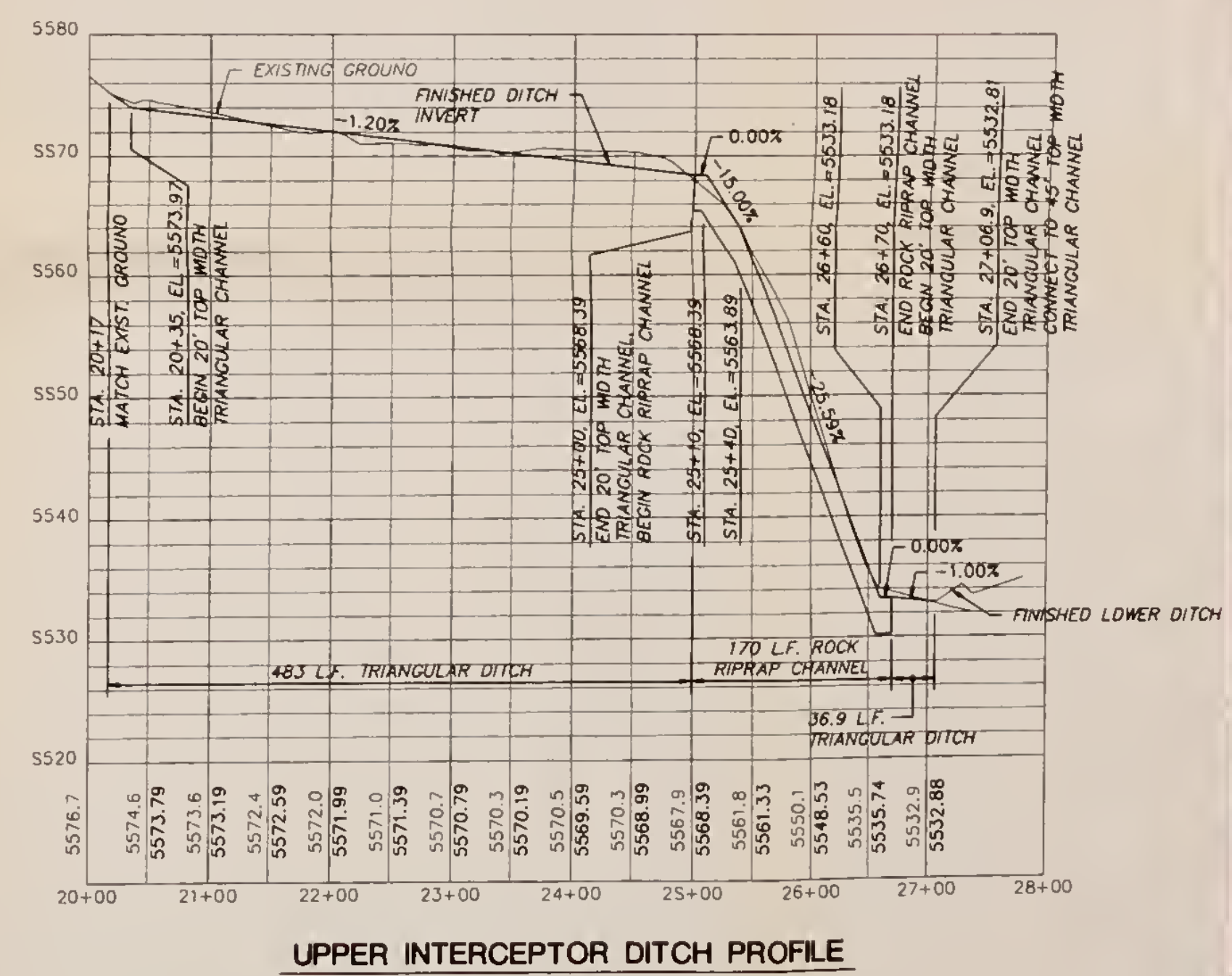


UTILITY INFORMATION SHOWN IS FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR LOCATIONS OF ALL LINES AND SERVICES BEFORE COMMENCING WORK.

- LEGEND**
- EXISTING POWER POLES
  - POWER POLE GUY WIRE
  - EXISTING OVERHEAD POWER
  - EXISTING FARM FENCE
  - NEW FARM FENCE
  - EXISTING BRUSH/TREE
  - EXISTING SWAMPY AREA
  - EXISTING CMP CULVERT
  - EXISTING FOUNDATION
  - EXISTING STRUCTURE
  - EXISTING ACCESS ROAD
  - NEW ACCESS ROAD
  - PROPERTY LINE
  - NEW INTERCEPTOR DITCH
  - ROCK RIPRAP CHANNEL
  - CONSTRUCTION LIMITS/REVEGETATION BOUNDARY
  - COAL SLACK REMOVAL/STREAM BANK STABILIZATION WITH EROSION CONTROL MAT
  - STRAW BALE EROSION CONTROL PROTECTION
  - SURVEY CONTROL POINT



LOWER INTERCEPTOR DITCH PROFILE



UPPER INTERCEPTOR DITCH PROFILE

**SOUTH RED LODGE DUMP MAINTENANCE PROJECT**  
CARBON COUNTY, MONTANA

**PLAN AND DITCH PROFILES**

Project No. 8M186.108 • SHEET 13 OF 13 • Date: APR. 1991 • Designed: CC • Drawn: GE • Checked: CC • Approved: CC

No.	Revision	By	Date
1	BACKFILL H.M.O.	RLG	8-92
2	RECORD DRAWINGS	RLG	8-92

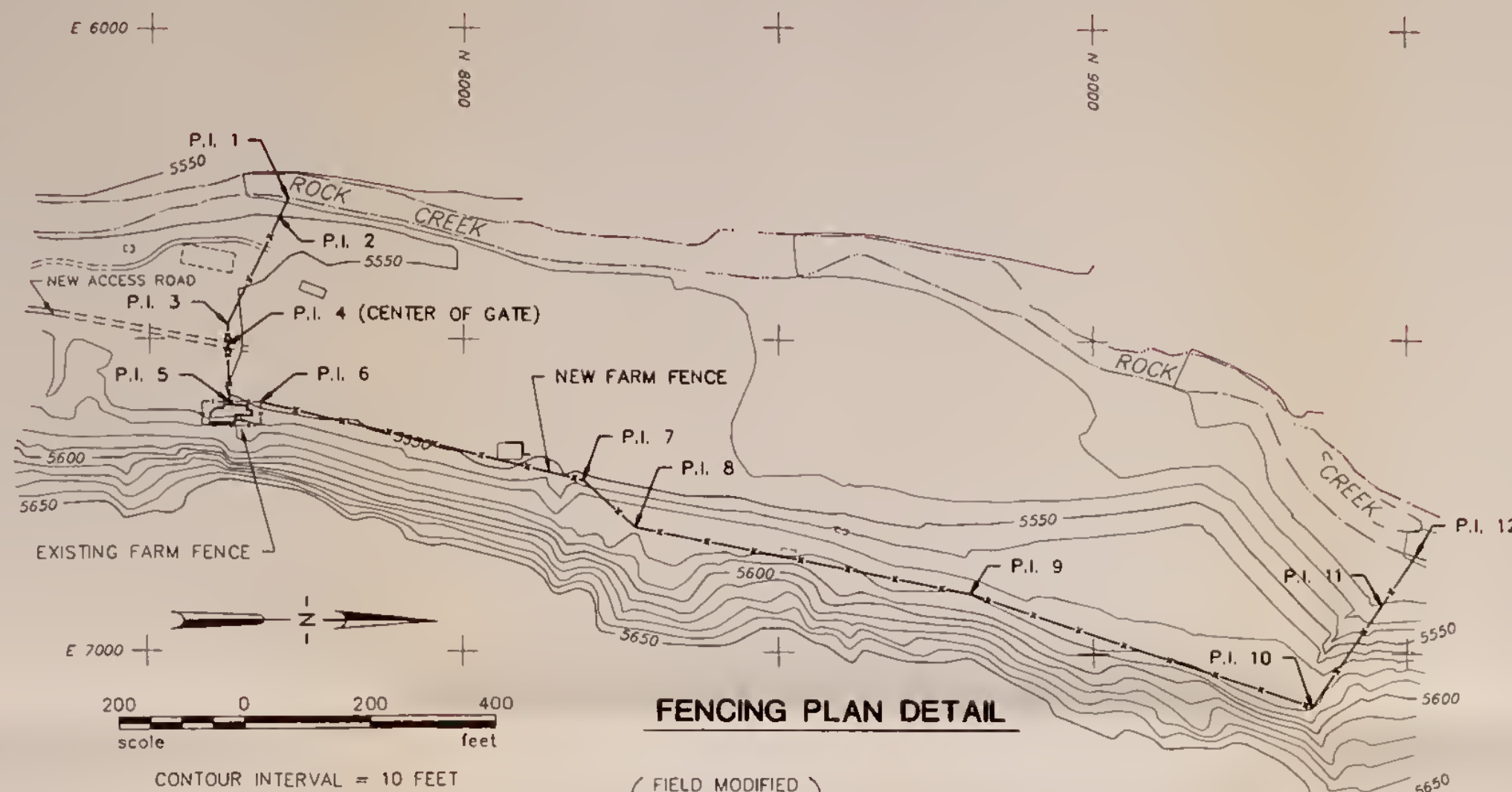
**HKM ASSOCIATES**  
ENGINEERS-PLANNERS

Branch Offices:  
Airport Industrial Park  
P.O. Box 31318  
Billings, Montana 59107 • Bozeman & Miles City, Montana

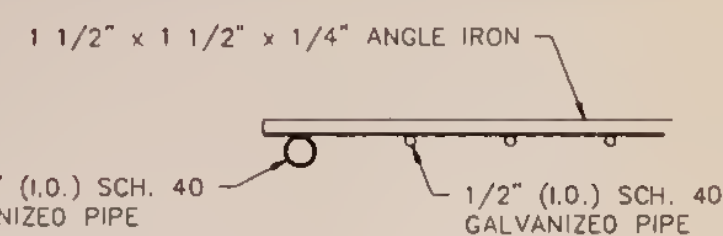


FENCING ALIGNMENT CONTROL AND PANEL LOCATIONS			
FENCE P.I.	NORTHING	EASTING	REMARKS
P.I. 1	7718.63±	6275.52±	END OF FENCE w/ SINGLE PANEL
P.I. 2	7704.57±	6305.38±	SINGLE PANEL *
P.I. 3	7623.20	6478.12	DOUBLE PANEL
P.I. 4	7624.24±	6511.87±	NEW 16' WIDE GATE w/ SINGLE PANELS EACH SIDE
P.I. 5	7627.02±	6602.81±	TIE TO EXISTING FENCE w/ SINGLE PANEL
P.I. 6	7677.05±	6602.81±	TIE TO EXISTING FENCE w/ SINGLE PANEL
P.I. 7	8190.53	6726.27	DOUBLE PANEL
P.I. 8	8272.71	6800.81	DOUBLE PANEL
P.I. 9	8804.19	6904.98	DOUBLE PANEL
P.I. 10	9348.30	7085.78	DOUBLE PANEL
P.I. 11	9459.25±	6924.00±	SINGLE PANEL *
P.I. 12	9512.99±	6845.66±	END OF FENCE w/ SINGLE PANEL

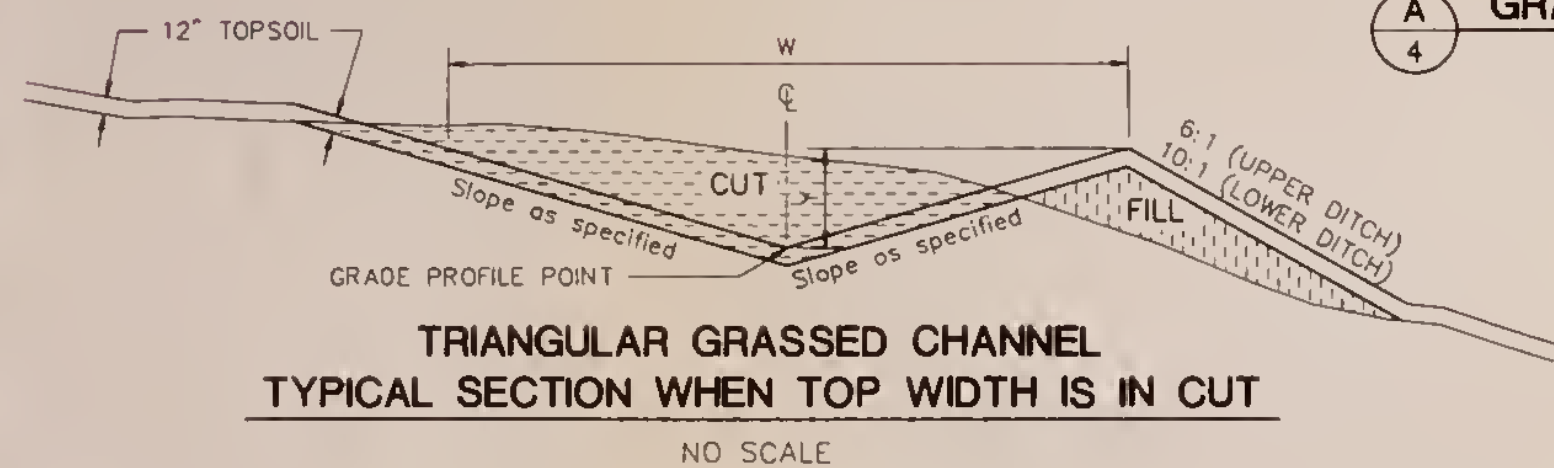
\* ACTUAL LOCATION TO BE DETERMINED IN FIELD



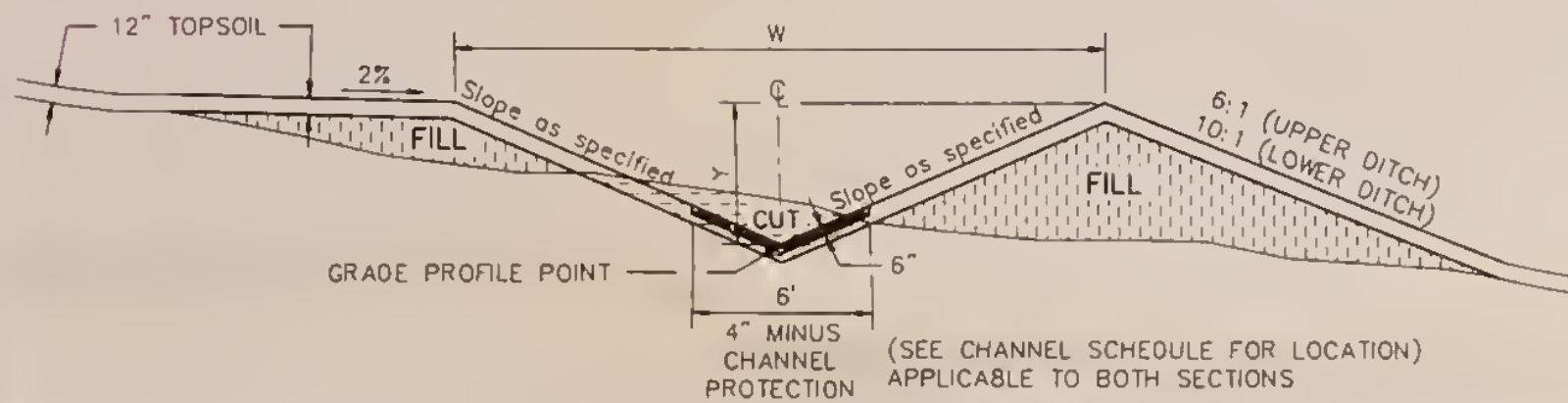
FENCING PLAN DETAIL



GRATE SECTION  
NO SCALE



TRIANGULAR GRASSED CHANNEL  
TYPICAL SECTION WHEN TOP WIDTH IS IN CUT  
NO SCALE



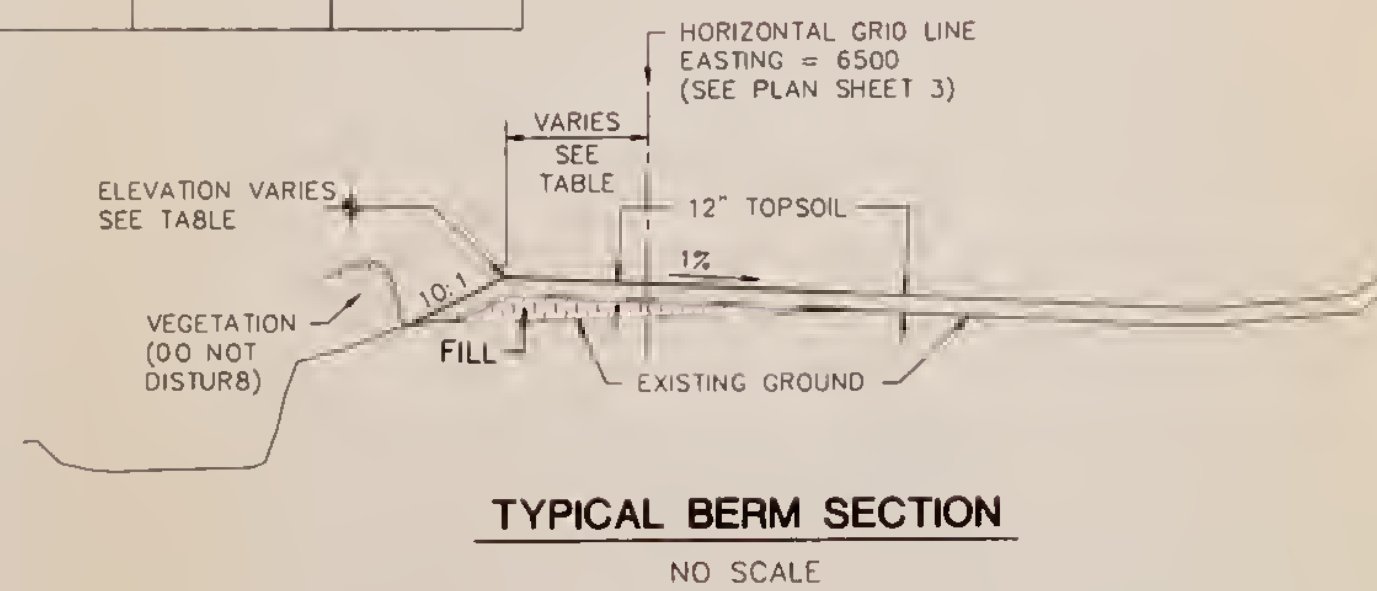
TRIANGULAR GRASSED CHANNEL  
TYPICAL SECTION WHEN TOP WIDTH IS IN FILL  
NO SCALE

TRIANGULAR CHANNEL SCHEDULE

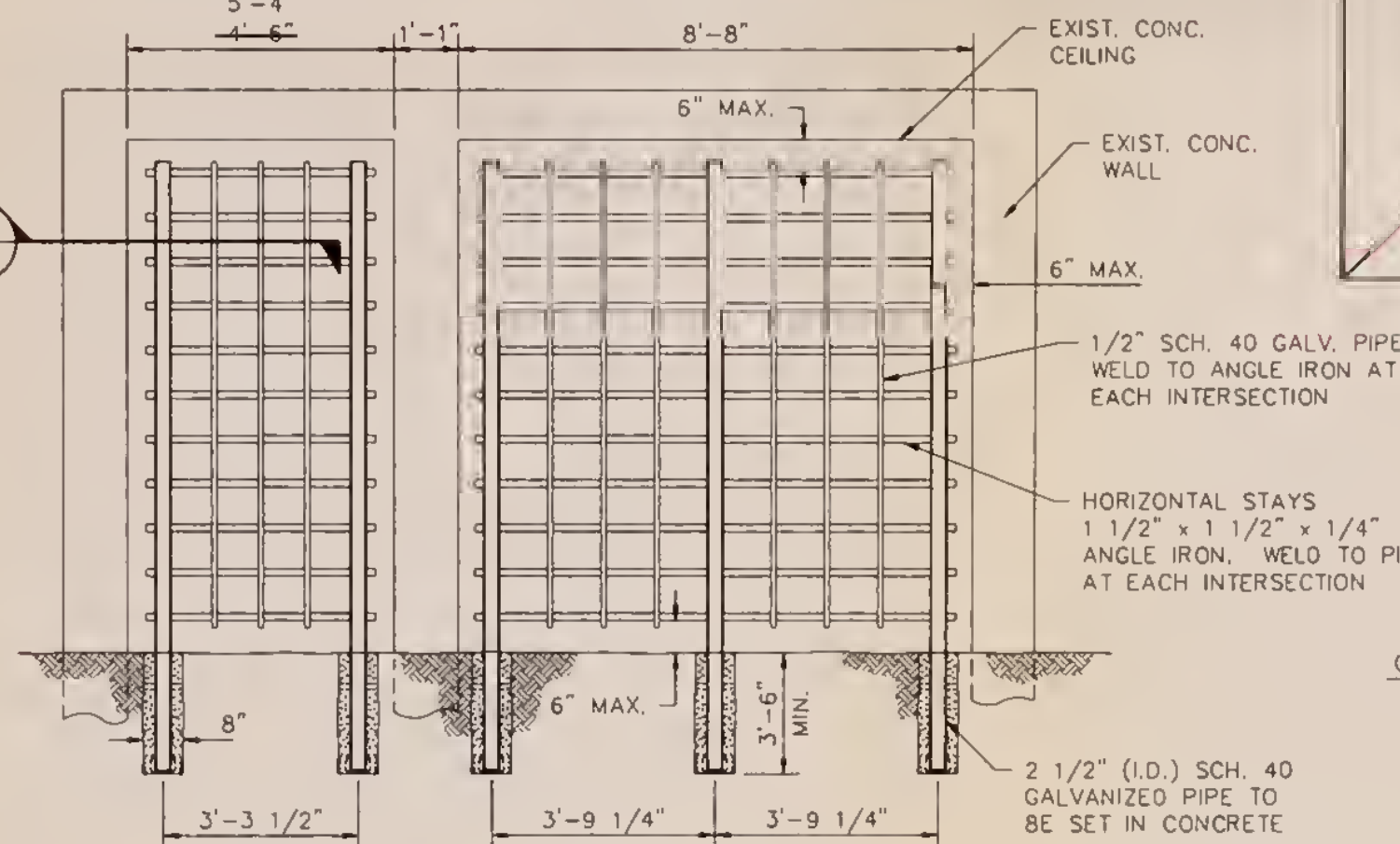
CHANNEL	FROM STA.	TO STA.	DEPTH ft	SLOPE ft	TOP WIDTH ft	CHANNEL PROTECTION CU. YD.	REMARKS
0+25	0+50	--	--	--	--	--	TRANSITION 0'W TO 40'W
0+50	9+25	2.5	8.1	40	--	--	
9+25	9+75	--	--	--	--	--	TRANSITION 40'W TO 45'W
9+75	12+45.54	1.5	15:1	45	--	--	
12+45.54	14+10	1.5	15:1	45	18.3	--	
20+17	20+35	--	--	--	--	--	TRANSITION 0'W TO 20'W
20+35	25+00	2	5:1	20	51.7	--	
26+70	27+06.9	2	5:1	20	4.1	--	

BERM LOCATION TABLE

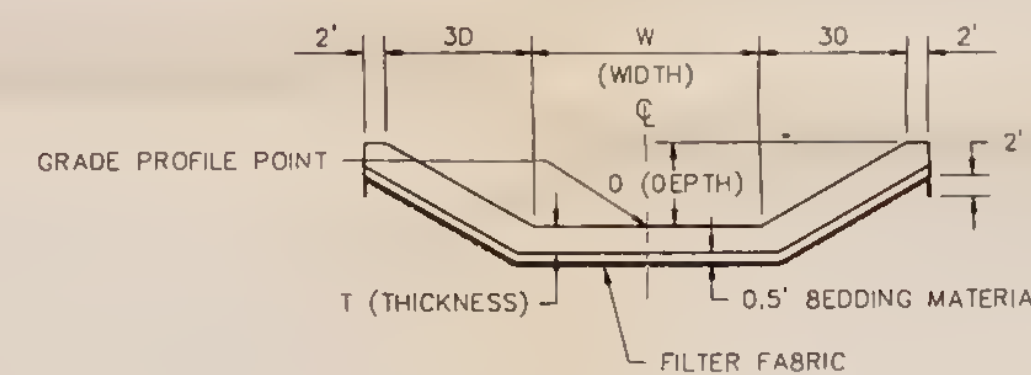
NORTHING COORDINATE	EASTING COORDINATE	TOP OF BERM ELEVATION
8300.00	6458.00	5545
8400.00	6462.25	5543
8500.00	6466.50	5541
8600.00	6470.75	5539
8700.00	6475.00	5537



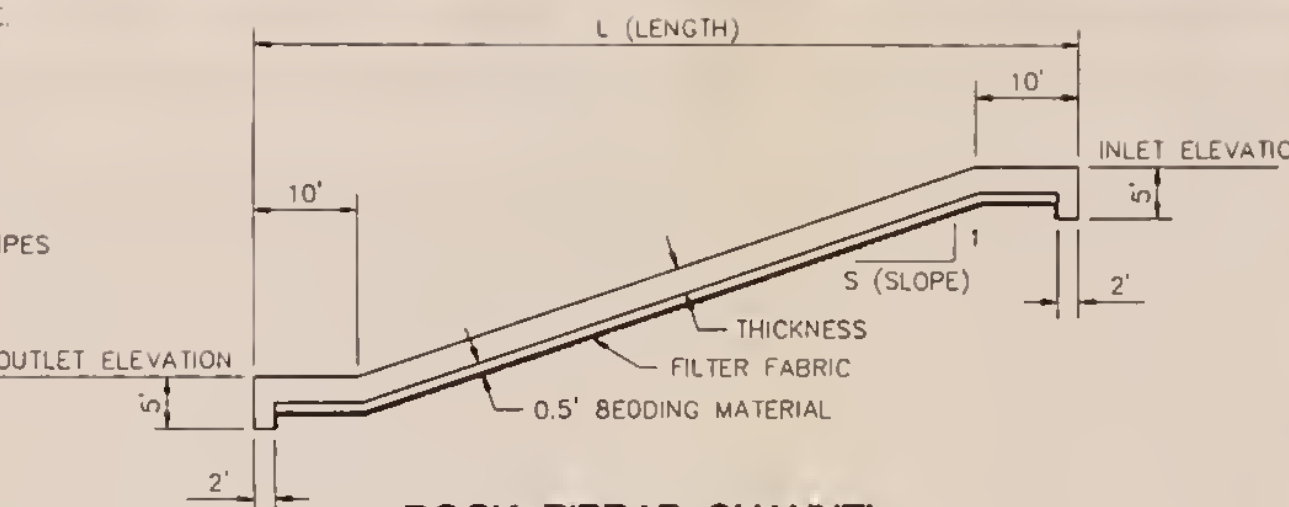
TYPICAL BERM SECTION  
NO SCALE



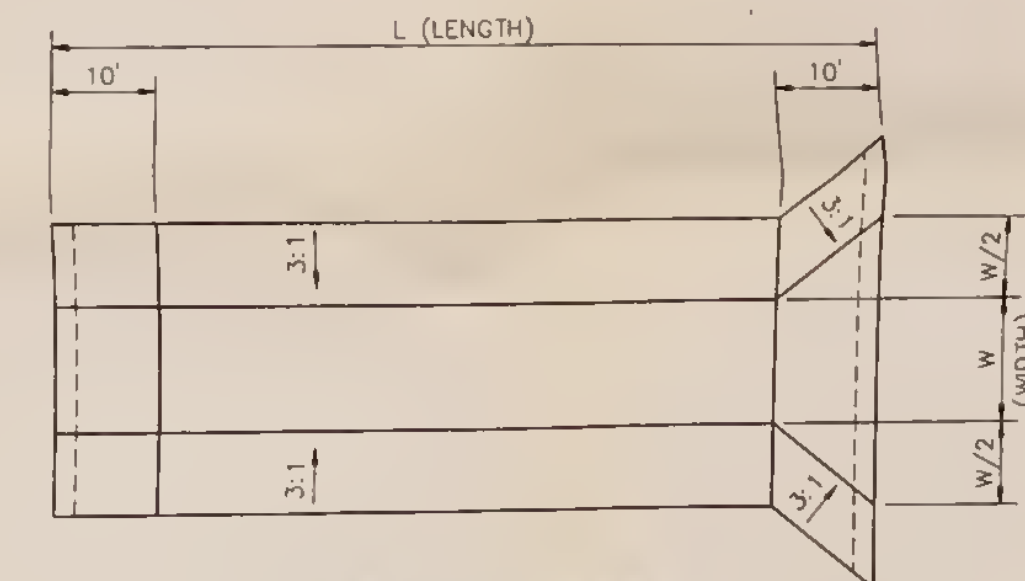
SHAFT CLOSURE GRATE DETAIL  
NO SCALE



ROCK RIPRAP CHANNEL  
TYPICAL CROSS SECTION  
NO SCALE



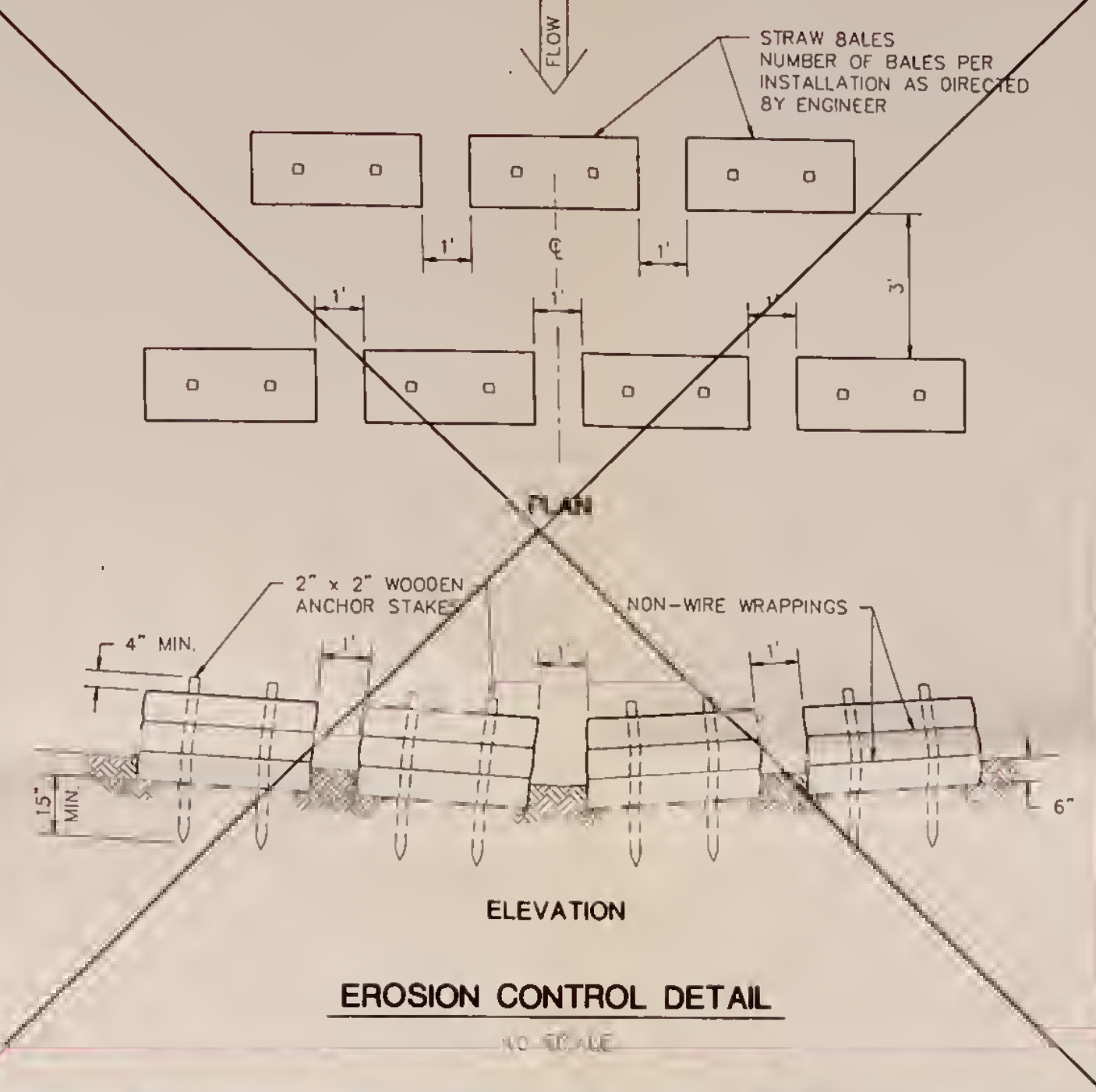
ROCK RIPRAP CHANNEL  
TYPICAL PROFILE  
NO SCALE



ROCK RIPRAP CHANNEL  
TYPICAL PLAN  
NO SCALE

ROCK RIPRAP CHANNEL SCHEDULE

ROCK CHANNEL		INLET ELEVATION	OUTLET ELEVATION	L ft	W ft	D ft	T ft	RIPRAP TYPE	RIPRAP QUANTITY CU. YD.	BEDDING QUANTITY CU. YD.	FILTER FABRIC SQ. YD.
FROM STA.	TO STA.										
14+10	15+25 <del>14+50</del>	5528.20	<del>5526.20</del>	115 <del>40</del>	14	2	2.5	I	385 <del>156</del>	31 <del>25</del>	146 <del>46</del>
25+00	26+70	5568.39	5533.18	170	14	2	3	II	528 <del>609</del>	156 <del>126</del>	749 <del>252</del>



EROSION CONTROL DETAIL  
NO SCALE

● Project No. 8M186.116 ● SHEET 4 DWG ● Date APR 1991 ● Designed CC ● Drawn GE ● Checked CC ● Approved CC									
SOUTH RED LODGE DUMP MAINTENANCE PROJECT CARBON COUNTY, MONTANA									
DETAILS AND TYPICAL SECTIONS									

**HKM ASSOCIATES**  
ENGINEERS-PLANNERS

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• Bozeman & Miles City, Montana

Airport Industrial Park  
P.O. Box 31318  
Billings, Montana 59107

Sheet No. **4**







